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CONTENTS AND DIGEST

The Influence of the War on Preventive Medicine and Public Health. C. St. Clair Drake, M.D., Springfield, Ill. 803

The war as a turning point in public health activity. The findings of exemption boards an awakening shock. Recognition of importance of venereal diseases. Child welfare work. Extension of clinical activities. Development of health officials from medical officers. Popular interest in public service.

The Higher and Better Education of the Dental Student. Eugene S. Talbot, M.D., Chicago 805

Organization of the Section on Stomatology. Overdoing of the mechanics of dentistry in the teaching. Need of better understanding of the etiology and pathology of disease. Wounds of the face and jaws. Focal infections. Faulty methods of practice. Medical teaching versus dental teaching. Need of making dentists professional men rather than mechanics. Book readers. University schools.

Discussed by Drs. Brown, Schamberg, Bogue, Moorehead, Fisher, Black, Turner and Talbot 836

Trench Fever in the American Expeditionary Forces. Homer F. Swift, M.D., New York.....807

Trench fever a newly recognized disease. Diagnosis. Etiology and course. Prophylaxis. Incidence of trench fever in the American Expeditionary Forces. Possibility of spread.

Discussed by Drs. Thayer, Zueblin and Swift.

Recurrences After Operations for Empyema. Franklin A. Stevens, M.D., Takoma Park, D. C......812

Late conditions from empyema. A record of 123 cases observed at Camp Lee, Va., and later at General Hospital No. 12, Biltmore, N. C. Study of recurrences. Efficiency of the Carrel-Dakin treatment. Report of cases.

The Therapeutic Aspect of Blood Transfusion. Lester J. Unger, M.D., New York 815

Modern methods of transfusion. Unmodified blood and citrated blood. Their relative merits. Effects on donors. Dosage. Indications for transfusion.

Discussed by Drs. Peterson, Hartman, Newman and Libman.

Foreign Bodies Within the Eyeball. John O. McReynolds, M.D., Dallas, Texas 818

Location and character of foreign body. Measures of relief. Results. Illustrative cases.

Discussed by Drs. Sweet, Mann, Green, Jackson, Greenwood, Francis, Derby, Holt, Tydings and McReynolds.

The Maximum Physiologic Lymphatic Reaction in Deeply Penetrating Wounds of the Eyeball. E. L. Jones, M.D., Cumberland, Md. 826

Susceptibility of eyeball to infection from penetrating wounds. Value of the massive mercuric cyanid injection.

A Second Attack of Syphilis Two Years After the First: Curability of the Disease. Jay Frank Schamberg, M.D., Philadelphia 826

Report of case.

Discussed by Drs. Zeisler, Guy, Lane, Irvine, Hazen and Schamberg.

(Continued on next page)

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See Pages 3, 4, 5

CONTENTS AND DIGEST— Concluded

Stricture of the Rectum. Frank C. Yeomans, M.D., New York.....829

Etiology. Congenital strictures. Assigned causes of traumatic stricture. Inflammatory strictures. Specific infections. Pathology. Other strictures. Diagnosis and prognosis. Treatment. Report of case. Salient features.

Discussed by Drs. Jelks, Donaldson, Pennington, Brick, Murray, Martin and Drueck.

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

The Whistle Test: An Aid in the Diagnosis of Gastric Tumor. Robert M. Lewis, M.D., Baltimore.....834

Stereoscopic Roentgenography with Films. Howard Curl, M.D., Madison, Wis.....835

Dural Separator and Bone Elevator for Craniotomy. Adolph M. Hanson, M.D., Faribault, Minn.....835

Resection of Thirteen Feet of Ileum. John R. Littlefield, M.D., Cumberland, Md.....835

Home-Made Ice Tongs for Extension. B. F. Stevens, M.D., El Paso, Texas 836

NEW AND NONOFFICIAL REMEDIES

Description of Articles Accepted by the Council on Pharmacy and Chemistry 837

Benzyl Alcohol — Cinchophen.

EDITORIALS

The Inheritance of Acquired Characters 838

Arguments in favor of transmissibility.

Protein Synthesis: A Chapter in Tissue Regeneration.....838

The protein-sparing action of carbohydrates.

The Treatment of Acute Empyema..839

Belief that the prewar treatment of empyema has not been superseded.

Physiologic Relationships of Iodin..840

Obvious bearing on thyroid therapy.

CURRENT COMMENT

The Junction of Ureters and Bladder 841

Prevention of a backward flow of urine by the normal closure of the ureters.

Orthopnea 841

The effect of the recumbent posture on irregularities in lung expansion.

Model Ordinances for Venereal Disease Control.....842

Aids in drafting uniform legislation on this important subject.

Apprenticeship in the Care of the Baby 842

A practical feature in the teaching of home economics.

MEDICAL MOBILIZATION AND THE WAR 842

Honorable Discharges, Medical Corps, U. S. Army.

Medical Officers, U. S. Navy, Relieved from Active Duty.

MEDICAL NEWS 845

MARRIAGES 851

DEATHS 851

PROPAGANDA FOR REFORM 852

Case's Rheumatic Specific.

CORRESPONDENCE 853

Pathology of the Mouth in Scurvy.

Need of Government Action to Check Botulism.

"Conductive Anesthesia by Intrasacral Injection of Procain."

QUERIES AND MINOR NOTES 855

War Risk Insurance.

Death by Hanging.

MEDICAL EDUCATION AND STATE BOARDS OF REGISTRATION

Coming Examinations — Report of Seventh Examination of the National Board of Medical Examiners — A British View of the Needs of Medical Education 855

BOOK NOTICES 858

SOCIAL MEDICINE, MEDICAL ECONOMICS AND MISCELLANY

Report of the Pennsylvania Health Insurance Commission — School Hygiene, Child Labor and Housing in Italy 858

MEDICOLEGAL

Evidence and Instructions in Malpractice Case — Evidence of Physician's Bill — Proper Time for Roentgen-Ray Evidence 859

SOCIETY PROCEEDINGS 860

Coming Meetings.

American Society for Clinical Investigation.

CURRENT MEDICAL LITERATURE

American Medical Journals

Case of Human Rabies 861

Diet in Tuberculosis — Postinfluenzal Tuberculosis — Primary Spontaneous Tumors of Testicle — Cancer in Hainan, China....862

Pancreatic Secretion and Bile Flow — Irrigation of the Subarachnoid Space — Effect of Subarachnoid Injections — Anesthetic Efficiency of Benzyl Alcohol — Output of Epinephrin from the Suprarenals — Action of Epinephrin on the Heart — Pneumonia Complicated with Emphysema 863

Favus in an Adult — Juvenile Diabetes—Care of New-Born — Treatment of Human Beriberi with Autolyzed Yeast Extract — Treatment of Typhoid Fever 864

Foreign Medical Journals

Autogenous Vaccines in Treatment of Chronic Nasal Catarrh — Renal Efficiency Tests in Nephritis—Subordinate Cause of Pulmonary Hemorrhage — Results of Urinary Analysis of Pregnant and Parturient Women....865

Normal Vital Capacity in Man — Etiology of Influenza—Tuberculosis in Asylum Patients — Antimony Tartrate in Bilharziasis—Useful Support for Operations on Kidney — Puerperal Infection: Its Relations to Polypoid Decidual Endometritis — Diabetes Mellitus Treated According to Allen's Method 866

Lymphocytosis in Soldiers — Respiratory Metabolism in Prolonged Undernutrition — Effects of War Nephritis on Kidney Function — Fatal Cases of Pernicious Malaria with Massing of Plasmodia in Cerebral Capillaries — Pigmentation of Oral Mucous Membrane 867

Heart Block and Bradycardia Following Influenza—Malarial Pleurisy and Peritonitis—Undulating Fever in Tuberculosis—Hygiene of Aviation — The Immunizing Power of the Serum of Diphtheria Bacilli Carriers—False Cancers of the Stomach.....868

Determination of Acids in Gastric Juice—Mega-Esophagus—Extrasystole from Nervous Lesion—Strophanthin and Coupled Rhythm —Myeloid Leukemia with Hemiplegia or Herpes Zoster—Effects on the Organism of Centrifugal Force—Spinal Anesthesia—Focal Auscultation 869

Primary Splenomegaly—Azotemia in Acute Infections — War Neuroses — Serodiagnosis of Dysentery—Unilateral Mydriasis—Measuring the Mass of the Blood—Beriberi in Spain—Pseudarthrosis of the Hip—Gastric Chemistry—Pneumography Applied to Cardiography —Hallux Valgus—Spa Treatment of High Blood Pressure 870

Hour-Glass Stomach—The Oculocardiac Reflex in Mumps—Lethargic Encephalitis—Pathogenesis of Gastric and Duodenal Ulcer—Pellagra — Nitrogen Metabolism in Infectious Jaundice—Vaccination Against Tuberculosis 871

Nitrogen Metabolism—Blood Diseases—Desiccated Bacteria for Biologic Tests—Vitiligo Mask with Inherited Syphilis — Peripheral Paralysis of the Fifth Nerve—Racial Color in Vital Statistics — Intestinal Parasites—Leishman Bodies Plus Fusospirillar Infection 872

Radium Therapy—Influenzal Psychoses—Symmetrical Gangrene—Obesity and Oxaluria—Malignant Chordoma—Arrested Development of Ectoderm — Recurring Puerperal Polyneuritis—The Clinical Significance of Tube Casts—History of Syphilis in India—Fatality Under Roentgen Treatment of Exophthalmic Goiter — Extrapyramidal Pseudosclerosis 873

Orthostatic Tachycardia — Brain Abscess of Nasal Origin—Ether or Thymus Death?—The Antibodies with Constitutional Hypersensitiveness, Asthma, Hay-Fever, etc.—Twins in Certain Families—Roentgen Treatment of Exophthalmic Goiter — Vestibular Jaw Reflex—Camphorated Oil in Sciatica.874

TONICS AND SEDATIVES—BOOKS RECEIVED.....Adv. Page 20

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THE INFLUENCE OF THE WAR ON PREVENTIVE MEDICINE AND PUBLIC HEALTH *

C. ST. CLAIR DRAKE, M.D.

SPRINGFIELD, ILL.

Those who have observed the thought and tendencies in preventive medicine of the present time must be impressed that the war will mark a definite turning point in public health activity and that there lies before us a period of reconstruction and reorganization in methods of health administration. The dominant thoughts underlying this readjustment are that both military and industrial power are dependent on man power and that the strength and efficiency of our man power will be determined, in the last analysis, by the health of the individual. In this readjustment, and born of our war-time experiences, disease prevention will be regarded as more important than disease suppression, and health promotion will take precedence over both. The public health administration of the future will be a forward-looking administration. While giving attention, as it has in the past, to the specific sources of illness, it will devote itself largely to the prevention of human ailments by the development of maximum health and, in pursuing this policy, it will deal with the individual more than ever before.

During the war, health became a matter of the utmost importance. It acquired a new practical value which, for the first time in our national life, has come to be appreciated by all intelligent people. The war also gave us some valuable and, incidentally, some disconcerting facts in regard to the physical condition and health of the people, and afforded an opportunity to try out the efficiency of modern preventive measures unrestricted and unhampered by prejudice, ultraconservatism or narrow opinion. As never before, public health work was given adequate financial backing. Efforts in disease prevention were made without the embarrassments arising from considerations of cost. For the first time we were able to demonstrate in a large way that good health is actually a purchasable commodity, and the American people have passed favorable judgment on the results of that demonstration.

This progressive policy, adopted in dealing with the health of the military forces, was doubtless due, to a large extent, to the fact that we were enabled to observe the experiences of European warring nations for some time before we became participants and, further, that we entered the war at a critical period when everything depended not only on the character of our military forces, but also on the productive ability of our industries. We had been awakened to the urgent necessity for the maximum of nation-wide physical efficiency.

The people as a whole have learned a new lesson as to the importance of individual and national health in time of war. They have also had it impressed on them that, while hostilities have ceased, the war is not over—that the period of reconstruction will make large demands on the physical resources of the nation—and they stand ready to continue and extend those health activities which have proved effective during the past two years.

The finding of the exemption boards and of army medical examiners came as a first awakening shock, disclosing, as they did, a surprising prevalence of physical disability, largely preventable in character, leading to the rejection, in the average community, of almost 20 per cent. of the young men who were presented for military service. These findings, incidentally, demonstrated conclusively the value of one of the modern means of health promotion too generally ignored in the past—the periodic, physical examination of presumably healthy persons for the detection of early disease.

Of the disclosures made by the various examining boards, none excited more general comment than that of the great prevalence of venereal diseases and tuberculosis—the two diseases which, in many ways, have been longest neglected in our public health activities. The grave apprehension which had already attached to tuberculosis in the European nations and the prompt action in the United States, in providing a large corps of tuberculosis experts for army service and in establishing large sanatoriums for returned consumptive soldiers, changed the attitude of the American people very radically toward that disease and indicated the necessity for more extensive antituberculosis activities in the future. States and communities in which restrictions and regulations for the control of tuberculosis have been largely ignored on account of indifference or prejudice now find the people and the medical profession ready and anxious for any reasonable restrictive action. In one state alone, the lessons from the war have made such impression that while few public sanatoriums existed prior to that time, forty such institutions have been created by popular vote within the past two years, each with its attendant dispensaries and community nursing service.

*Chairman's address, read before the Section on Preventive Medicine and Public Health at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

RECOGNITION OF IMPORTANCE OF VENEREAL DISEASES

The awakening to the importance of venereal diseases and the change in public sentiment in regard to them have been even more spectacular. Health officers and the general public have always been reluctant to deal with these ailments frankly, and the campaigns of education have been generally half-hearted and weak. Certain press associations, reflecting the commonn sentiment of a few years ago, passed resolutions disapproving the use of the words "gonorrhea" and "syphilis" in the public prints. In view of this timid policy, and possibly as a result of it, the recently published statements of Vaughan and Palmer[1] are significant. While all other communicable diseases which sorely beset the armies during the Civil War have been greatly decreased and, in some instances, practically eliminated, there was found to be a very large increase in gonorrhea in the army of 1917 as compared with 1861.

The manner in which the federal government, through its military medical departments and under the provisions of the Kahn-Chamberlain law, have attacked the venereal disease problem, not only of soldiers, but also of the civil population, established a new policy and line of action from which the health officers of the future will never recede. Venereal diseases are being discussed before general audiences without hesitation, and educational and restrictive measures are being carried out such as would not have been possible had it not been for the accent placed on the subject when the nation was at war. The method of dealing with individuals who are presumably spreaders of venereal infection is a striking index of our entirely changed point of view. In many communities, prostitutes are now being apprehended, but, instead of being fined or committed to jail, which could have no influence whatever on the prevention of disease, these unfortunate women are sentenced, but the sentence is suspended so that they may be committed to general hospitals for treatment and from which they are discharged only when they have clinically recovered or when the best obtainable evidence indicates that they are no longer sources of infection. This is another indication, incidentally, of the individualization in health work which will unquestionably be a large factor in the health programs of the future.

CHILD WELFARE WORK

The acute problem that has confronted the European nations, particularly France and Belgium, of a decreasing birth rate and a greatly increased mortality, has attracted world-wide attention and has centered unusual interest on the field of child welfare, and this interest has been accentuated by the realization that much of the physical inefficiency disclosed by examining boards might have been avoided had there been more intelligent thought on the subject of child conservation in the past. It is, of course, generally recognized that the span of human life has been increased about six years during the past generation and that it is possible further to extend life expectancy; and it is further recognized that this gain in the life period is largely due to the prevention of infant mortality, so that child welfare work appears at present to be the most hopeful field for public health endeavor and the one promising the most direct and definite returns.

In the attempt to reduce infant mortality, as carried on throughout the nation today, the chief efforts are directed toward keeping the well baby well, following the policy of health promotion rather than that of direct disease prevention; and the public health organizations are devoting themselves to the development of the individual child through better baby conferences, infant welfare stations, community nurses and other factors that are relatively new to public health organizations.

EXTENSION OF CLINICAL ACTIVITIES

This individualization in health work, illustrated in what has been done during the war in tuberculosis, venereal diseases and child welfare, foretells a definite new departure in the public health administration of the future—the development of extensive clinical activities. In the past, with certain exceptions, health departments have taken no part in diagnosis except in the contagious and infectious diseases of epidemic type and through the services of diagnostic laboratories. If the policies adopted both here and abroad during the war are to be continued and extended, it seems inevitable that health authorities must render increased diagnostic and clinical services, including the early diagnosis essential to recovery from tuberculosis; the diagnosis of venereal diseases and the treatment of such cases especially for indigent persons; the development of well baby clinics and clinics for the reeducation of victims of poliomyelitis, on the diagnosis and treatment of trachoma, and so on. To carry out this work successfully, the various health departments will be compelled to employ physicians of highly specialized skill, and will necessarily have to make provision for far more generous compensation than is customary among public health agencies at the present time.

This extension of clinical service by health authorities, contrary to the opinion occasionally expressed, will prove directly beneficial to the medical profession as a whole. It is a matter of common agreement, wherever such public clinical work is undertaken, that, as a result of its educational influence, there is a decided and immediate increased demand for professional service among the patients of private physicians. In this way, the results of public health clinical work extend much farther than merely to that part of the public which the clinics themselves actually serve.

The work that is being done by the Department of Reconstruction of the United States Army, under the leadership of Col. Frank Billings, suggests possible extensions of public health activity since, in the broader and newer conception, public health work includes every activity that will increase the physical efficiency of the individual or community or which will restore the physically unfit to the highest point of health. To what extent this policy of reconstruction can be properly utilized in the future is open to question; but, in the development of our future program, it is entitled to serious consideration. Certainly the work that has already been done by some health departments in the training and reeducation of persons crippled by poliomyelitis has been so gratifying and far-reaching as to justify the belief that reconstruction will one day be a part of public health promotion.

1. Vaughan, V. C., and Palmer, G. T.: Communicable Diseases in the National Guard and National Army of the United States During the Six Months from September 29, 1917, to March 29, 1918, J. Lab. & Clin. Med. 3:635 (Aug.) 1918.

DEVELOPMENT OF HEALTH OFFICIALS FROM MEDICAL OFFICERS

It is obviously impossible to discuss at this time all the phases of preventive medicine influenced by the war, but one factor which will have a tremendous effect in altering the public mind in regard to health administration is the return to civil life of thousands of physicians who have received intensive training in sanitation and preventive medicine during their military service. It is to be expected that a large number of these physicians, having had their first experience in public service, will be reluctant to return to private practice, and there may be developed from them an unusually competent group of health officials; while those who return to private practice will exercise a new and salutary influence in their own communities.

POPULAR INTEREST IN PUBLIC SERVICE

In addition to this, there will be scattered throughout the nation approximately 4,000,000 young men who have had impressed on them in no uncertain terms the paramount importance of disease prevention and health promotion, and who have seen the advantage of yielding cheerfully to reasonable health regulations. These young men will naturally assume the leading part in their community affairs during the next generation and, with the guidance of public health departments of broader vision and larger resources, will materially influence the history of preventive medicine of the future.

The greatest changes in health development, however, will come out of the tremendous interest in public service created during the war and which found expression in the upbuilding of many large extragovernmental organizations engaged in various phases of patriotic and philanthropic work. With the war over, these organizations have been casting about for desirable fields for the expenditure of their energies and, in the majority of instances, they have settled on some phase of public health activity. This has created a situation which is disturbed and unique, full of possibilities for splendid progress and equally full of possibilities for confusion, overlapping, conflict and wastefulness.

This great popular interest will doubtless serve to stimulate the governmental health agencies to greater endeavor and will overcome official apathy and ultraconservatism. If these volunteer agencies can be properly coordinated under governmental guidance, they can be a tremendous influence for good. Unguided, however, the very multiplicity of organizations, the ease with which private funds are now obtainable for health purposes, and the lack of uniformity in views and methods will lead to wastage in money and effort and to the ultimate weakening and discredit of public health endeavor. The war has left us in a critical condition, full of possibilities for good and bad, in which sound judgment and firm policy by health authorities are imperatively needed.

Is Your Community Fit?—What effort has been made to ascertain whether or not your milk supply is safe? Diphtheria, scarlet fever, septic sore throat, typhoid fever, dysentery, all may be spread by unsafe milk. A system of inspection and efficient pasteurization will protect people from milk-borne diseases. If your community is too small to bear the expense of dairy inspection, it should at least enjoy an adequate system of pasteurization under proper supervision.—*Pub. Health Rep.*, April 25, 1919.

THE HIGHER AND BETTER EDUCATION OF THE DENTAL STUDENT*

EUGENE S. TALBOT, M.D.
CHICAGO

The object of the formation of this section was to assist in establishing a closer relationship between the mother profession of medicine and the younger specialty of dentistry, and eventually to place the specialty on a medical basis. How much has been accomplished in this direction since its formation, history has shown. Certainly the interest displayed by the ablest men in the medical profession by their presence, in reading and discussing papers, demonstrates that they have done more than their share in placing this section on an equal footing with the other sections in this great Association.

In my early practice of dentistry I soon realized that if I was to become a successful practitioner, I must know more of pathology than I had obtained in the dental school. To obtain that knowledge I must attain a medical education; and although it was a hardship for a man with a family to abandon practice for two years, I have been more than compensated by the broader knowledge and fellowship which I have acquired. Every man starting out in life should have high ideals, and those ideals should be so broad and advanced that it requires a lifetime to accomplish the end.

The ideals firmly fixed in the minds of those men who organized this section were that dentistry, being a part of the healing art, should and must be a part of the medical profession, and that a thorough medical education was just as necessary for treating diseases in the mouth as diseases in any other organ of the body. The dental schools have begun to realize this fact, for since this section was established, the college course has been extended from a two-year to a four-year course, the entire length of a full medical education.

It is rarely the lot of man to live to see his ideals developed to their highest attainments. Nearly all of the organizers of this section have passed on. With one exception, however, they all lived to see great advances along the lines of their ideals.

The stomatologist with his medical education is on an equal footing with the men practicing in every other department of the healing art, and is, therefore, freely consulted in the most difficult and obscure etiologic symptoms of disease in which the mouth, jaws and teeth may possibly be a factor.

As time goes on and the etiology of disease becomes better understood, the relationship of the general practitioner and the stomatologist must become more intimate. It stands to reason, then, that the man who treats the mouth, jaws and teeth must be a medical specialist, equal to the best medical specialist in other branches of the healing art.

It may be of interest to the members present to know that in the thirty-nine years of its existence, this section has not received a single paper on the subject of the mechanics of dentistry. All papers presented and read before the section have been on the subject of pathology or on some subject of interest to both

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* Chairman's address, read before the Section on Stomatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

physicians and stomatologists. By adopting this plan, physicians have been as much interested in reading the papers of this as of other sections.

On the other hand, many dentists subscribe for The Journal or obtain access to it through physicians in their vicinity. Through this section, therefore, there has developed a closer relationship between medicine and dentistry. The future of this section has a prosperous outlook. Focal infections arising from diseased teeth, and also the associations as a result of the war, have drawn the stomatologist and the medical practitioner into closer relationship. We have arrived at the period when one cannot possibly get on without the other. Physicians are seeking specialists who are qualified to assist them in a proper diagnosis of disease, and naturally associate with those who are medically educated. In the future, therefore, the man who wishes to be a success in his specialty must have a medical training.

The future of the section is assured. Dr. Black comes to us as secretary in the fulness of youth and experience. I am sure that he will direct the future welfare of the section to a higher and broader usefulness.

WOUNDS OF THE FACE AND JAWS

Modern methods of war and its destruction have developed a line of surgery of the face and jaws that could not have been produced in any other way. Injuries due to explosive shells have caused more extensive wounds than can be produced in any other way. These include fractures, destruction of bone structure, and lacerations of the associate soft parts.

We have with us at this meeting stomatologists who have been most active in the different branches of this service and who will demonstrate the latest methods of teaching of the treatment of wounds.

FOCAL INFECTIONS

It has been shown and accurately demonstrated that 95 per cent. of all roots of teeth are imperfectly filled. In other words, owing to irritations in the process of treating and filling the roots of teeth or to the decomposition of tissue after filling, pathologic changes occur about the roots, as shown by the roentgen ray and microscope. These pathologic changes have been known to the profession for the past eight or ten years, and yet the same methods of treatment are applied today as formerly. How long would the medical profession continue to perform an operation on any other tissue of the body, knowing that the technic was so faulty? My researches on animals during the past twelve years,[1] show that the least irritation produced in the treatment of the roots of the teeth will cause absorption of the alveolar process and roots, with irritation and inflammation of the peridental membrane.

Abnormal collateral arterial development in the roots of the teeth and the abnormal development of the granular layer of Tomes—researches of which have not yet been published—demonstrate the almost complete hopelessness of permanent success, no matter how well the root may have been filled.

The number of focal infections and disturbances from faulty root fillings, local and systemic, is appalling. The average dentist, not being grounded in pathology, does not and cannot appreciate the seriousness of his faulty treatment. A different method of root filling must be immediately instituted or devitalized teeth must be extracted. A rule which I have adopted is that a patient's health is worth more than all the natural teeth.

1. Talbot, E. S.: Dental Cosmos, May, 1919.

FAULTY METHODS OF PRACTICE

From time to time, in the past thirty years, I have repeatedly called the attention of the profession to the fact that modern dentistry is producing more disease than any other one cause. The profession is beginning to realize the truth of this statement. Since the first dental college was established, there has gradually developed a method of practice of mechanics regardless of pathologic results. The method of practice, at best, has benefited the individual patient only for the time being. On the other hand, after operations are performed, disease has followed in almost every instance.

Our present method of treatment has not benefited the race as a whole. Decay of the teeth and deformities of the jaws have increased from generation to generation until at the present time hardly a child under 12 years of age can be found free from tooth decay and deformities of the teeth and the jaws. Since our present methods of procedure are faulty, we must resort to radical changes in treatment and devote our entire attention to preventive measures.

MEDICAL TEACHING VERSUS DENTAL TEACHING

The wonderful progress made in medical teaching in the last fifteen years should be an incentive for the better education of the dentist. In 1904 there were about 156 medical schools in this country. Through the influence of the Council on Medical Education the standard has been raised and the number of schools, by combining one with another or by dropping some out altogether, has been reduced in the last fifteen years to eighty-five. From 80 to 95 per cent. of these schools now require for admission two years of work in a college of arts and sciences, as compared with only 2.5 per cent. of all colleges holding that requirement in 1904. In some of the schools there has been a continuous session of the four quarters plan, whereby the student is allowed to select any three quarters of the year that best suit his convenience to complete his yearly term.

The chairman, Dr. John M. Dodson,[2] in his report asked: "Is there a logical reason why the student should not be allowed to utilize the summer months in full-time medical work in residence and thus complete the present requirement of four sessions in three calendar years, his year of internship in a fourth year, and so enter into active practice a year earlier than has been possible under previous regulations?"

Under the four quarters scheme, seven weeks may be provided for vacations so that attendance on the four quarters is no hardship for the student in good health who desires to avail himself of the privilege.

Dr. N. P. Colwell,[3] in stating the further needs in medical education, said that an improvement still greatly needed in medical schools concerns the methods of clinical instruction of medical students. Students should be enabled to complete most of their didactic courses in the third year, so that most, if not all, of the time of the fourth year may be devoted to

2. Dodson, J. M.: Problems in Medical Education, J. A. M. A. 72: 821 (March 15) 1919.
3. Colwell, N. P.: Recent Progress and Further Needs in Medical Education, J. A. M. A. 72: 822 (March 15) 1919.

clinical courses for groups of about six students each in the hospital wards.

These changes, so necessary in medical schools, are just as necessary in the dental schools. I have advocated these changes in dental teaching for a number of years. Why should a student spend four years in college when he can save a year far easier than the medical student, since only half of his curriculum is given up to didactic teaching and the other half to the mechanics of dentistry? The mechanics of dentistry can very easily be taught in the summer months, and the fundamental principles of medicine and dentistry may be left for the winter months. The curriculum can be so arranged that the student can have from five to seven weeks' vacation, which is from three to five weeks longer than the vacation of the average professional man.

I have held for many years that the dental school could not make a professional man out of the student by the present method of teaching, even if the course should be extended to six or eight years. There are two grades of dental colleges in the United States: those that are an actual part of universities or colleges, and those that are not. Those that are a part of universities have nothing to do with the matriculation of students. Those that are not have everything to do with the entrance requirements of students. There is an unwritten law among the dental schools that all students entering must be either graduates of a high school or they must successfully pass an examination covering the average high school requirements. The result is that a large percentage of the students entering the dental schools other than those connected with universities or colleges have not an education equal to that of our common schools. It is possible that the dean can explain how these students enter.

Having entered, this uneducated student immediately begins to ascertain what is necessary for graduation. He soon learns that the mechanics of dentistry is the essential thing, since he cannot graduate until he can successfully perform certain operations on the teeth and make artificial dentures. Most of his thought and time is spent along these lines. Courses are pursued in the departments of anatomy, physiology, pathology, bacteriology, chemistry, etc., but are not considered of so much importance as it is the mechanics of dentistry that counts toward graduation and practice.

The student begins his mechanical training almost as soon as he enters school. The result is that the ignorant young man, following the line of mechanics, on graduation enters practice as a mechanic rather than as a professional man. As I have already stated, by this method of teaching, a six-year or eight-year course would not improve the mentality or standing of the individual in the community.

Again, students entering the dental school from the farm, shop and factory are unmindful of what is required of them when they enter practice. They pay their fee and expect to be qualified to serve the public successfully when they enter practice. They soon learn, however, that a broader knowledge of the essentials of medicine is necessary to cope successfully with the conditions presented by their patients than they had received in their dental training.

The remedy is easy. Make a professional man out of the dentist, as well as a mechanic. Require the student to take one or two years' work in the arts and sciences. This will relieve the dean of the dental school of all responsibility of the preliminary requirements. The first two years of work in the dental school should be given up to didactic teaching. The student should not be permitted to operate on patients or perform mechanical laboratory work until the third year. All or nearly all of the last two years may be given up to the practical side of the specialty. The preliminary training in the laboratory of the academic and premedical courses will give the student all the finger training that is necessary to prepare him for his dental activities.

BOOK READERS

There are about 45,000 dentists in the United States. Out of that number not over 500 buy books relating to their specialty, or read them. The reason for this has already been explained. Dentistry is a part of the healing art. There is no reason why the dentist should not be as well educated as the physician and hold an equal position in the community. It is high time that the profession itself awoke to the situation and demanded better qualified graduates from our dental schools.

UNIVERSITY SCHOOLS

This section has always used its influence on the side of the university schools. Your secretary has made it a point to attend the annual meetings of the Dental Faculties Association of American Universities when possible, and has always been received with much cordiality. He has read and discussed papers relating to the higher and better education of the dentist. I would suggest that the executive committee of this section be made a standing committee to attend the annual meetings when possible and use its influence on behalf of this section to suggest improvements in special teaching and to encourage the teachers in their efforts to place their schools on an equal footing with other departments of the healing art.[4]

TRENCH FEVER IN THE AMERICAN EXPEDITIONARY FORCES *

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Trench fever is a disease that has been recognized and differentiated from other morbid conditions during the recent war. While there is little doubt that it existed previously in some place or places, there is no doubt that to all medical officers it presented new problems in diagnosis, prognosis and treatment.

There are descriptions of the disease and reports of its occurrence in all armies on the western front. But from the mass of reports it is impossible to determine the original source of the infection or the line of spread from area to area. The constant movement of troops in an army, the ever changing composition of every unit, make epidemiologic studies very difficult and accurate reconstruction of the mode of diffusion of a well known disease virtually impossible. When we consider that on the western and eastern fronts and behind the lines there were troops from nearly every country in the world, it is easy to understand how an unknown disease, which might have been endemic in

4. The discussion on this article will be found on page 836, this issue.

* Read before the Section on Practice of Medicine at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

some out-of-the-way country, might rapidly gain a foothold among men who had not developed any natural immunity.

The difficulties in collecting accurate statistics concerning trench fever were increased by the recency of its discovery. It was never made a reportable disease because the conditions which must be fulfilled to make reporting compulsory could not be clearly defined. For many months most medical officers were ignorant of the existence of the disease, let alone its manifestations in the patients under their care. To the entire medical profession the nature of the disease was more or less a mystery. The fact that the term "pyrexia of undetermined origin" (P. U. O.) was applied in the diagnosis of most cases is sufficient indication of the general attitude toward the malady. Although the specific nature of the infection was established by McNee, Brunt and Renshaw in 1916, it continued to be confused with other acute infections. The term "pyrexia of undetermined origin" was applied to all these conditions, even though it usually implied trench fever.

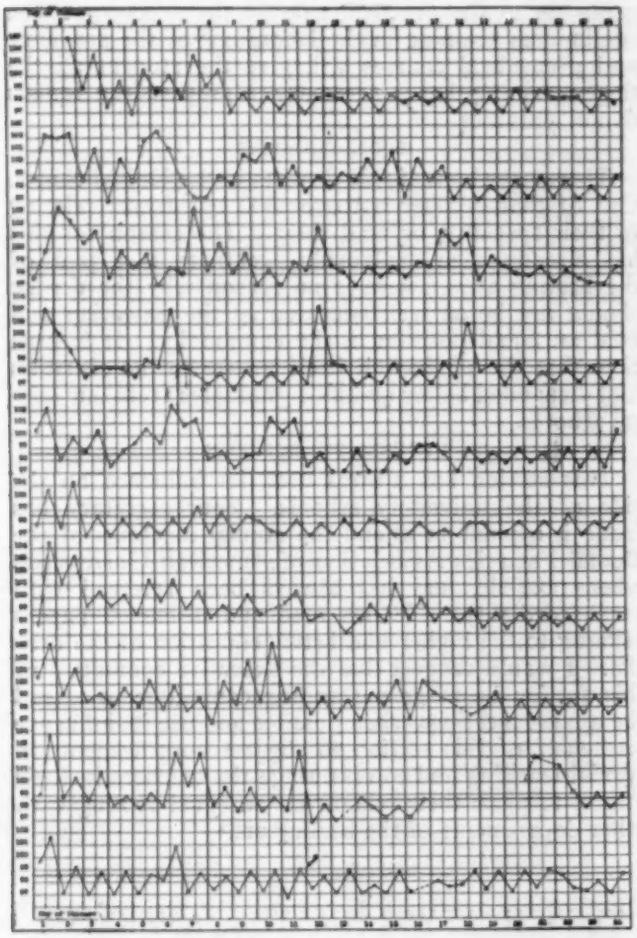

Chart 1.—Different types of fever that may occur from inoculation of different persons with the same strain of virus. In the next to the last case the temperature was normal from the twelfth to the fiftieth day. In this chart the temperature after the blank space marks the febrile relapse on the fifty-first and fifty-second days.

DIAGNOSIS

While it is fairly easy to describe the general disease trench fever, it is much more difficult to make an exact diagnosis in many individual cases. This difficulty arises from the variety of manifestation.

Fever, which is the most common of all the symptoms, does not always follow any one course. Various efforts have been made to separate the types of fever into two or three groups. The most comprehensive classification is that of the British Expeditionary Force Trench Fever Commission:

(*a*) Relapsing, either regular or irregular.
(*b*) One single short bout resembling influenza.
(*c*) Continuous fever extending over a longer period, resembling in its form typhoid or paratyphoid fever.

While such classification is useful, it should be emphasized that the cases do not always fall into one of these groups. A case with regular relapses may later have long continued low-grade fever. The febrile relapse may occupy only four to six hours, and hence may be missed if only morning and evening temperatures are taken. Again, the entire fever may continue less than forty-eight hours. The case with three or five days continuous fever without a subsequent relapse may be easily mistaken for influenza.

Charts 1 and 2 illustrate the different types of fever that may occur from inoculating different individuals with the same strain of virus. They are abstracted from charts of the volunteers inoculated by the American Red Cross Trench Fever Commission.

The other clinical manifestations of trench fever, taken separately, are even less diagnostic. The sudden onset with headache, general muscular pain and anorexia is seen in other acute infections. The "pink eye" resembles the conjunctival congestion so frequent in influenza. The nystagmus, elicited on extreme lateral rotation of the eyeballs, may be present normally and is seen in other febrile states.

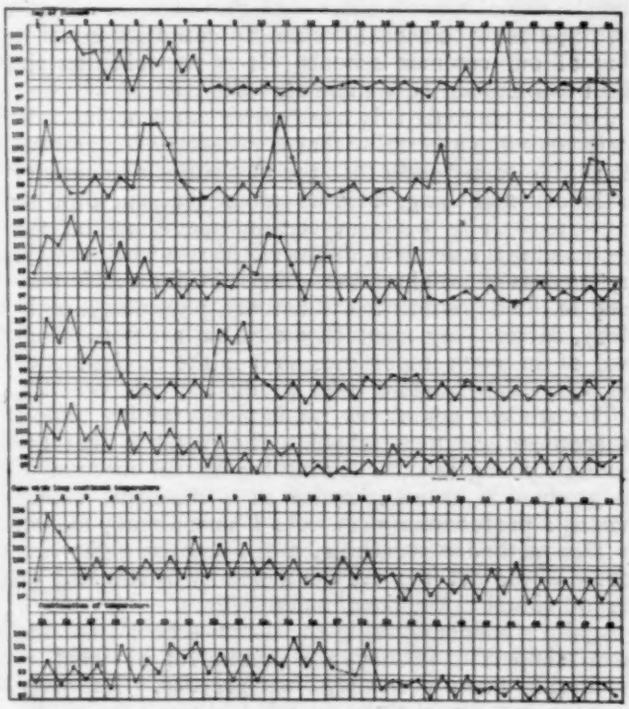

Chart 2.—Different types of fever that may occur from inoculation of different persons with the same strain of virus.

An enlarged spleen is found in typhoid fever and malaria, either of which may be mistaken for trench fever. The trench fever spleen, however, is harder than that found in typhoid fever and not so large as that often present in malaria.

The trench fever rash may be mistaken for typhoid rose spots, if the evolution of the individual macules and the relation of their appearance to the other manifestations of the disease are not carefully recorded.

The neck pains may suggest meningitis; the pain in the back, lumbago; and the abdominal pains, appendicitis or acute peritonitis. The joint and muscle pains are often mistaken for subacute or chronic rheumatism or myalgia. The painful joints in trench fever are not swollen. The shin pains in trench fever are the most characteristic symptoms of the disease, although they are not always present. Similar pains are described in dengue fever, and in soldiers after long marches or after standing in mud or water for long periods.

There is no laboratory method which has a direct diagnostic value. Leukocytosis is usually found during the periods of pyrexia, but leukopenia is occasionally as marked as in typhoid fever or dengue.

The reason for reciting these confusing points is to show that a correct diagnosis is not readily made in a single examination or from the consideration of a few symptoms or signs. It is only by careful daily examinations and the recording of the findings, as well as by the elimination of other diseases, often by laboratory methods, that the largest proportion of correct diagnoses can be made.

The preceding remarks apply to the difficulties in making a diagnosis in every army under field conditions. Certain special difficulties existed in the American Expeditionary Forces. During the period when most of these cases occurred, we were passing through the influenza epidemic. It is usual for physicians to apply the name of the most prevalent acute disease to all pyrexias of undetermined origin that come under their observation. In this way they make the largest number of correct diagnoses, but at the same time

TABLE 1.—TRENCH FEVER AND PYREXIA OF UNDETERMINED ORIGIN IN THE AMERICAN EXPEDITIONARY FORCES

	Trench Fever		Pyrexia of Undetermined Origin		
	1917	1918	1919	1918	1919
January	..	3	186	.....	2,476
February	..	1	61	.....	1,4 7
March	..	3	51	.....	703
April	..	4	14	.....	366
May	..	0	...	.....	.....
June	..	19	...	1,748	.....
July	..	33	...	1,393	.....
August	1	29	...	1,552	.....
September	2	67	...	3,474	.....
October	0	33	...	3,759	.....
November	3	15	...	3,214	.....
December	2	36	...	1,747	.....
Subtotals	8	223	314	16,887	5,052
Totals			555		21,939

many incorrect ones. Trench fever and influenza closely resemble one another at the onset. Many cases can never be differentiated. Most cases require prolonged observation and continuous temperature records. In the rapid movement of patients from one hospital to another, the temperature records frequently were not sent with them. The temperatures and pulse rates were often taken, but not recorded, because there was no convenient place to record them. It is self-evident that the field medical card should have a special blank for the recording of temperatures. Then the degree and the time of fever would be noted, and the medical officers in the hospitals in the rear would not be at a loss to know what had gone on in the forward areas. This knowledge is important for the proper care of both sick and wounded.

Influenza was constantly present in the American Expeditionary Forces, there being 190,689 cases reported from July, 1917, to May, 1919. In addition there were 21,939 cases of pyrexia of undetermined origin. It is easy to understand how a number of cases of trench fever might have been missed in these 212,628 cases.

ETIOLOGY AND COURSE

Both the British and American Trench Fever Commissions have shown that the body louse is the chief

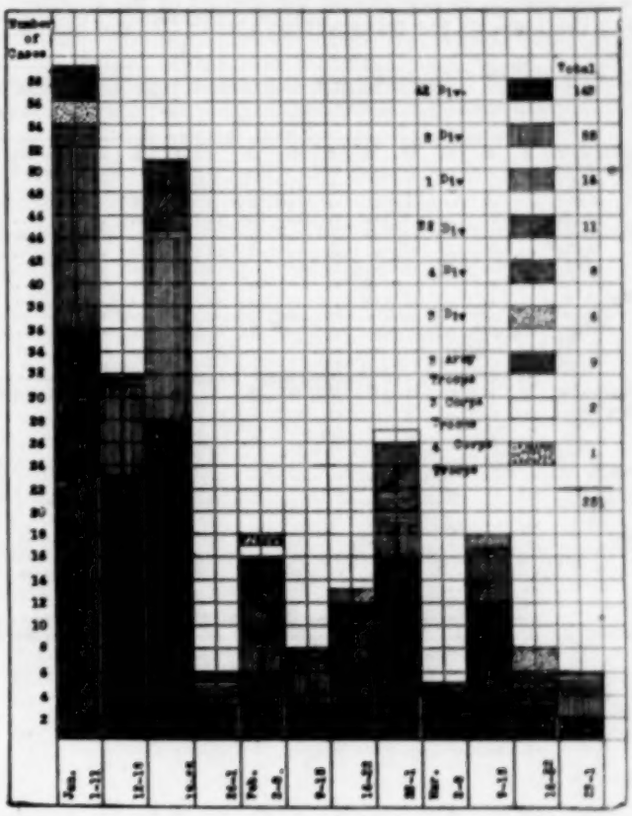

Chart 3.—Incidence of trench fever in troops of Third Army, Jan. 1-March 1, 1919.

agent in transmitting the virus from man to man. The British commission feels that the chief mode of inoculation is by the scratching of the feces of infected lice into the skin of louse infested men. The American commission showed that infection did occur following the bite of infected lice, even when there was no visible excoriation of the skin. The elucidation of the exact mode of inoculation is purely an academic problem, for it is certain that lice living under normal conditions can easily transmit the infection. The virus remains active for a long time in dry louse feces. It is also present in the urine of trench fever patients, its resistant qualities being shown by the fact that the concentration of such urine by drying does not kill it. It will pass through a Chamberland filter. Its thermal death point is above 60 C. All these characteristics show that it belongs to the group of resistant filterable viruses.

The course of the disease in human beings is different from that ordinarily seen in most other acute infections. In many ways it resembles malaria. The number of relapses is variable. It tends to become subacute or chronic in many patients. In some there are long periods of latency, the patient appearing per-

fectly well, with later an acute exacerbation. There is no known specific cure. Recovery is evidently due to the development of some type of immunity. Lice may take up the virus from a patient weeks or months after the onset of the disease. Just as there is no known laboratory method of diagnosis, so there is no known method of determining when a patient may be no longer a source of infection.

PROPHYLAXIS

From the foregoing observations, three factors must be considered in preventing the spread of the disease: (1) the louse as the transmitting agent; (2) the human foci of infection, and (3) the resistant nature of the virus.

The extent of lousiness of soldiers under field conditions is well known by many medical officers. Peacock reported that at least 95 per cent. of British soldiers living in the trenches were lousy. Many sanitary reports from our own army indicate a similar degree of infestation among American troops. Among the first sixty American volunteers who reported to the American Trench Fever Commission, 38.3 per cent. were infested, even though the entire detachment was supposed to have been recently deloused. It is remarkable how soon an entire division will become infested after an ordinary delousing. Constant, thorough inspection and easily accessible bathing facilities and delousing apparatus are necessary to keep all the troops of an army vermin free. It is needless to dwell on the general lack of these requisites during an active campaign.

Our troops must have come into contact with many soldiers with trench fever. The disease was very prevalent in the British army. At least ten of our divisions spent a portion of their training period in the British area. Reports from American base hospitals attached to the British army show that a number of our soldiers were infected with the disease in this area, even though the proportion was not so high as among British troops. It is impossible to state accurately the degree of prevalence of the disease in the French army. We know, however, that it did exist. It was present to a considerable degree among the German soldiers, so that our advancing troops were exposed to infection in the captured trenches, and the troops of the army of occupation were exposed to a certain extent in German billets and barracks.

TABLE 2.—DISTRIBUTION OF TRENCH FEVER CASES IN FORTY-SECOND DIVISION

	165th Infantry															149th Field Artillery									Military Police				
Company	A	B	C	D	E	F	G	H	I	K	L	M	M.G.	Hq.	Sup.	X	A	B	C	D	E	F	Hq.	Sup.	X					
Jan. 1-11	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1	..	..	1	1	2	1	3	..	..	..	..	..
12-18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	..	..	..	..	..
19-25	..	1	..	1	..	..	..	1	..	2	1	1	..	..	..	..	1	..	1	..	1	1	..	..	..	..	..	..	..	..
26- 1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Feb. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..
9-15	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16-22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	1	..	..	..	..	..
Mar. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
9-15	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..
16-22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

	166th Infantry															150th Field Artillery									150th M. G. Bn.				
Company	A	B	C	D	E	F	G	H	I	K	L	M	M.G.	Hq.	Sup.	X	A	B	C	D	E	F	Hq.	Sup.	X	A	B	C	D	X
Jan. 1-11	..	..	..	2	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
12-18	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
19-25	..	..	..	2	..	1	..	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..
26- 1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Feb. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
9-15	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16-22	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	..	..	..	..	..	1	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
Mar. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..
9-15	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	I	1	..	..	..	..	1	1	..	..	..	..
16-22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..

	167th Infantry															151st Field Artillery									151st M. G. Bn.				
Company	A	B	C	D	E	F	G	H	I	K	L	M	M.G.	Hq.	Sup.	X	A	B	C	D	E	F	Hq.	Sup.	X	A	B	C	D	X
Jan. 1-11	.	..	2	..	..	..	..	..	..	1	1	..	..	..	..	..	2	..	..	1	..	..	..	..	1	..	..	..	..	..
12-18	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	4	..	..	..	1	..
19-25	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	1	..	..	1	1	..	..	..	..	..	..
26- 1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Feb. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
9-15	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16-22	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..
Mar. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
9-15	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16-22	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

	168th Infantry															117th Engineers									117th Fd. Sig. Bn.	117th Amm. Tr.	
Company	A	B	C	D	E	F	G	H	I	K	L	M	M.G.	Hq.	Sup.	X	A	B	C	D	E	F	Hq.	Sup.	X			
Jan. 1-11	.	2	..	3	..	1	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..
12-18	.	..	1	..	1	..	..	..	..	2	..	3	..	..	..	..	..	1	..	..	..	..	..	1	..	1	..	..	..
19-25	.	..	..	..	..	..	1	1	..	1	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..
26- 1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Feb. 2- 8	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9-15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16-22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Mar. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..
9-15	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
16-22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

INCIDENCE OF TRENCH FEVER IN THE AMERICAN EXPEDITIONARY FORCES

Table 1 shows that only a small number of cases of trench fever were reported in the American Expeditionary Forces. These figures are probably far from representing the actual number of cases. All of the reasons for making diagnosis difficult were constantly

in operation. Many of the diagnoses were missed because of the rapid movements of the sick, but probably many more were missed because medical officers were not acquainted with the manifestations of the disease. This statement is borne out by the experience in the Third Army. Early in January, 1919, after the troops were in the areas they were to occupy permanently, and most of the sick were under continuous observation in the evacuation hospitals, a number of cases of typical trench fever were brought to light. occurred in December. In fact, many of the patients stated that their trouble began at the time of the march forward from the Argonne region into Germany. Taking the figures as they stand, however, we see that over three-fourths of the cases occurred in two divisions, the Forty-Second and the Second. The effect of delousing and removing patients from their division is well demonstrated, for after the third week in January the number of cases fell off rapidly in each division. The distribution of cases throughout the division, corps

TABLE 3.—DISTRIBUTION OF TRENCH FEVER CASES IN SECOND DIVISION

	9th Infantry								12th Field Art.	23d Infantry									12th Field Art.		
Company	A	B	C	D	H	L	M.G.	Hq.	F	C	D	E	F	G	I	L	M.G.	Hq.	Sup.	F	Hq.	Sup.
Jan. 1-11	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	1	1	1	..	..	1	..
12-18	..	1	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..
19-25	1	..	1	1	1	1	1	..	..	..	..	..	2	..	..	1	..	..	..	..	..	..
26- 1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Feb. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
9-15	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16-22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Mar. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9-15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16-22	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..
23- 1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

	5th Marines		2d Engineers	1st Field Sig. Bn.	17th Field Art.				6th Marines					2d Amm. Tr.		2d San. Tr.		6th M. G.
Company	17	49			C	F	Hq.	X	15	75	78	96	X	B	D	16th Amb.	23d Fd. Hosp.	X
Jan. 1-11	1	..	..	1	..	1	1	1	..	1	..	..	..	..	1	1	1	..
12-18	..	..	..	..	..	..	..	1	..	..	1	..	1	..	..	..	..	1
19-25	..	..	..	2	..	1	1	..	1	..	..	1	..	1	..	..	..	..
26- 1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Feb. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9-15	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16-22	..	..	..	..	1	..	1	..	..	1	..	..	..	..	..	..	..	..
23- 1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

TABLE 4.—DISTRIBUTION OF TRENCH FEVER CASES IN FIRST, THIRD, FOURTH AND THIRTY-SECOND DIVISIONS, THIRD CORPS, FOURTH CORPS, AND THIRD ARMY TROOPS

	1st Division														32d Division									3d Corps Troops	
	16th Inf.	28th Inf.			18th Inf.					6th F. A.		7th F. A.		1st Amm.	P. E.	125th Inf.			126th Inf.	127th Inf.				128th Inf.	323d F. A.	308th Eng.	166th F. A.
Company	K	B	F	M.G.	C	E	F	H	L	A	Hq.	D	F	Tr.	S.	C	F	X	M	F	H	K	Hq.	C	F	C	B
Jan. 1-11	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12-18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19-25	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	1
26- 1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Feb. 2- 8	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	1	1	..	..
9-15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
16-22	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	..	1	..	..	..	..	..	..	1	..	1	..	2	..	1	..	..	..	1	..	..	..	..	..
Mar. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9-15	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16-22	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

	3d Division				4th Division							4th Corps Troops	3d Army							
	4th Inf.	7th Inf.	6th Eng.	76th F. A.	29th Inf.	47th Inf.			58th Inf.			11th M.G. Bn.	51st Pion.	1st Pion.		3d Army Bakers	Hq. Troop	Evac. Hosp. 4	S. C. 1	A. T. C.	149th Inf. (?)	327th F. A. (?)
Company	D	Hq.	B	E	D	X	D	F	I	F	I			A	K				F	4		
Jan. 1-11	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..
12-18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19-25	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	1
26- 1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Feb. 2- 8	..	..	..	..	1	..	..	..	..	..	..	..	1	..	1	1	1	..	..	..	..	..
9-15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16-22	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Mar. 2- 8	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9-15	..	1	..	..	..	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
16-22	..	1	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

An attempt was then made to acquaint all medical officers in the field and evacuation hospitals with the manifestations of the disease, the mode of transmission, and prevention. By means of informal reports, the medical officers of the various units from which cases came were urged to insist on better delousing measures.

Chart 3 shows the incidence and distribution of cases in the various units by weeks for the first three months of this year. All of the reports were made from the evacuation hospitals. In several of the cases reported between the 1st and the 11th of January, the onset and army troops down to units as small as companies is shown in Tables 2, 3 and 4.

Cases were identified from 162 different companies. From each of 110 of these companies one case was diagnosed, from thirty-five companies two cases, from ten companies three cases, from five companies four cases, from one company five cases, and from one company seven cases. Thus, while the infection was widespread throughout the army, it was not very extensive in any one unit. The figures suggest that foci of infection had been present among the troops only a short time. It is interesting to note, however, that the two

divisions with the heaviest rate had been overseas since 1917. The lower rate in the other old division, the First, is in line with the general low sick rate in that division.

By the first of February, delousing facilities were fairly adequate. This month the rate dropped to less than half that of January, and in March it was about one fourth the January rate. The continuation of the disease in February and March was probably due in part to infection incurred in January, and in part to infection contracted elsewhere. At this time, large numbers of men were going on leave to various parts of France where troops from other units of the American Expeditionary Forces were also on leave. Leave, with the diminished medical supervision and the necessary crowding on trains and in billets, was a fruitful source of infection of all kinds.

A comparison of the number of reported cases (300) in the entire American Expeditionary Forces in the first three months of 1919 with the number from the Third Army for the same period reveals the fact that five sixths of the reported cases were from the Third Army. In spite of the heavy incidence in two of the divisions, it is highly improbable that one seventh of the entire American Expeditionary Forces would furnish five sixths of the cases, especially when several of the divisions then in France had been more exposed to trench fever. We are, therefore, forced to conclude that a considerable number of cases existed throughout the American Expeditionary Forces that were never recognized.

POSSIBILITY OF SPREAD

The return of so many soldiers to civil life will doubtless result in distributing foci of infection throughout the country. Every possible precaution is being taken to see that the troops are completely deloused before embarkation and demobilization. Nevertheless, the possibility of long latent periods and late relapses, as well as the power of body lice to take up the virus during the late periods of the disease, must be borne in mind. Lice are not confined to armies. In our cities there is constant danger of transmission of any louse-borne disease if human foci of infection exist.

The fact that trench fever is not fatal has naturally caused it to be disregarded when there were so many more urgent conditions demanding the attention of the medical officers. As an economic problem, it must be recalled that, on the average, a trench fever patient is incapacitated for six weeks. Often the infection persists for months. The effort syndrome is a not infrequent sequela; indeed, this symptom may be an indication of the persistence of the infection. It is, therefore, important to keep in mind, as after-war problems, both the possibility of the spread of the infection and its effect on discharged soldiers.

ABSTRACT OF DISCUSSION

DR. WILLIAM S. THAYER, Baltimore: The only way to learn the practice of medicine is by practice and experience, and there is no greater demonstration of that than what has been shown in the paper by Dr. Swift. Dr. Swift went up into the active area and found trench fever; the rest of us did not find it.

DR. ERNEST ZUEBLIN, Cincinnati: I think any new disease of which we have heard so much is liable to arouse our curiosity, and I think we are really fortunate to have Dr. Swift tell us about his experience. With the discussion of a new disease such as trench fever, many questions arise which I would not like to touch on at the present moment, but first I would like to know whether in addition to the cardiac manifestations any other syndromes have been encountered; second, whether the means of controlling the lice have been sufficient to prevent any further propagation of the disease; and third, how long a time is required, that is, for how long a time the patient is still to be considered as infective and a danger to the community, and what are the means available to determine the extent and duration of a cure from the disease.

DR. HOMER F. SWIFT, New York: I forgot to mention that the disease is not fatal. We do not know of any patient who died as a result of trench fever. I think in the British army a large proportion, 50 per cent., of the cases of D. A. H., had trench fever. Another late symptom is the persistence of leg pains and lumbar pains. Many of these patients come in with the diagnosis of chronic rheumatism or chronic lumbago, and when you go back and reconstruct their histories, you will find that they began with definite relapses every few days. Unfortunately, we have no way of telling how long a patient will remain a source of infection. We have no laboratory method of diagnosing the disease, and we have no way of telling how long that patient will infect a louse before a louse will infect a human being. I think as long as a patient is showing active symptoms of the disease he should be a subject for isolation, not strict isolation as in measles, but isolation from infestation.

The second point as to the amount of heat necessary to kill the virus, you will see that from 56 to 60 C. kills the lice and also kills the eggs, so that for ordinary purposes heating clothes at 60 C. is sufficient to delouse. That is not sufficient to kill the virus in the feces of the lice or the virus in the clothes that may have come from urine or saliva, so that it takes a higher degree of heat to disinfect clothes which have come into contact with trench fever patients, as well as disinfect them.

RECURRENCES AFTER OPERATIONS FOR EMPYEMA *

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The final results of the treatment of empyema of the chest can be ascertained only after the elapse of a considerable period. This period is of variable length and depends on the organism causing the infection, on the size and shape of the cavity, and on the particular method of treatment adopted. There is a minimum possibility of recurrence when the sinus has been completely obliterated by a gradual approximation and cicatrization of its walls. Recurrences are more common when an empyema is allowed to close while a cavity containing air still exists. If the Carrel-Dakin treatment has not been used to sterilize the cavity, the percentage of recurrences is particularly high. In addition, there are two other possible causes of reaccumulations of pus; either that isolated collections have escaped detection throughout the period of drainage, or that a part of the cavity has become sequestrated by a contraction of its walls. Long continued observation after apparent cure is necessary to eliminate all sources of error.

I am in the fortunate position of having been able to complete the records of 123 cases of empyema, observed first by the Empyema Commission at Camp Lee, Va., and subsequently at General Hospital No. 12 at Biltmore, N. C. All of these patients were admitted

* From the Walter Reed General Hospital.

during the first six months of 1918, and as far as results are concerned, permit a comparison between the treatment of empyema by simple drainage and drainage combined with the Carrel-Dakin method. These cases naturally fall into two groups: Group 1 consists of 100 cases which had been treated by simple drainage immediately following diagnosis, and includes the cases up to the middle of April, 1918. Fifty-six patients were healed under this treatment; the empyema in the remaining forty-four became obstinately and persistently chronic until treated by the Carrel-Dakin method. In only ten cases was a thoracoplasty of moderate extent finally indicated. In Group 2 there were twenty-three patients who were admitted during April and May of 1918. They were treated by preliminary aspiration until the primary infection of the lung had subsided, and subsequently by thoracotomy and surgical solution of chlorinated soda.

TABLE 1.—RECURRENCES

	Month after Healing								Unhealed	Total
	1	2	3	4	5	6	7	8		
A. Resection immediately after diagnosis	..	..	..	..	..	..	..	..	..	100
I. Healed without Carrel-Dakin treatment	..	..	..	..	..	..	..	..	..	56
Recurrences in healed sinus	3	5	0	1	0	0	0	1	0	10
Recurrences distant from sinus	1	1	1	1	0	0	0	0	0	4
Bacteria:										
Hemolytic streptococcus	4	6	0	1	0	0	0	1	0	12
Sterile	0	0	1	1	0	0	0	0	0	2
II. Simple drainage, healed under Carrel-Dakin treatment	..	..	..	..	..	..	..	..	..	44
Recurrences in healed sinus	0	1	1	0	1	0	0	0	0	3
Recurrences distant from sinus	0	0	0	0	0	0	0	0	1	1
Bacteria:										
Hemolytic streptococcus	0	0	1	0	1	0	0	0	1	3
Sterile	0	1	0	0	0	0	0	0	0	1
Number of thoracoplasties	..	..	..	..	..	..	..	..	..	10
B. Aspiration followed by open drainage:										
Carrel-Dakin treatment throughout	..	..	..	..	..	..	..	..	..	23
Recurrences in healed sinus	0	0	0	0	0	0	0	0	0	0
Recurrences distant from sinus*	0	1	1	0	0	0	0	0	2	4
Bacteria:										
Hemolytic streptococcus.	0	0	0	0	0	0	0	0	1	1
Staphylococcus aureus ..	0	1	0	0	0	0	0	0	1	2
Sterile	0	0	1	0	0	0	0	0	0	1
Number of thoracoplasties.	..	..	..	..	..	..	..	..	..	3

* "Recurrences distant from sinus" includes undiscovered pus pockets resulting from multilocular empyema and lung abscesses. The mortality in Group A was high and these conditions were common in the necropsies which were performed. Of the total number of patients in Group B (twenty-four), only one died. This accounts for the high percentage under this heading.

Among the cases healed under simple drainage, fourteen, or 25 per cent., of the recurrences were encountered within eight months after the primary healing. The majority of these were discovered during the first or second months, either during routine examination or because of a rise of temperature. Ten of these cases, occurring at the site of the primary operation, were caused by the hemolytic streptococcus, the organism which was the cause of the original infection. The pus collections in the remaining four were found either at the apex of the pleural cavity or very high in the axilla, and probably were the result of isolation of a part of the original cavity by adhesions soon after operation. Although they were all purulent, living streptococci were found in only two; the others were sterile.

Among the sixty-seven cases healed under the Carrel-Dakin treatment, comprising the refractory empyemas of the earliest group as well as those in which surgical solution of chlorinated soda had been used throughout, there were eight recurrences. Three of these occurred at the site of the previous operation; two of these were due to the hemolytic streptococcus, while the third was merely a collection of a small amount of clear, sterile fluid. Except for a lung abscess found at the angle of the scapula, the remaining five recurrences were at the apex of the pleural cavity. Bacteriologic examination revealed streptococci in two of these cases, *Staphylococcus aureus* in two cases, and one was found to be sterile pus.

A study of these recurrences is an interesting demonstration of the efficacy of the Carrel-Dakin treatment. The group treated by this method not only shows a higher percentage of perfect results, but also that the pus pockets which were discovered were usually at some distance from the original focus.

In discovering these secondary foci of pus there were two symptoms which proved to be of the greatest value: 1. The patients either never regained their normal weight or even lost weight in spite of the fact that they were continuously kept on high carbohydrate diet. In this connection it is interesting to note that in the cases of recurrence in two patients whose weight was above that recorded on admission to the army, the fluid was sterile. 2. In all cases of recurrence of a purulent nature, the pulse rate was always rapid and there was also a moderate fever. There were, in fact, two different types of fever present. Fever of a very acute nature was found most frequently in cases which had been allowed to close before complete sterility was obtained; in these the febrile reaction was sharp and was usually accompanied by constitutional symptoms. In other cases a mild evening temperature of 99 to 99.5 F. was observed, especially when the pus pocket was at some distance from the primary empyema and was evidently of long standing. These points were well illustrated by the following histories:

TABLE 2.—EFFECTS OF CARREL-DAKIN TREATMENT

	Total	Recurrences	
		No.	Per Cent.
Cases healed under simple drainage	56	14	25
Cases healed under Carrel-Dakin treatment	67	8	12

REPORT OF CASES

CASE 1.—A patient admitted March 26, 1918, with bronchopneumonia developed a massive streptococcic empyema within the next two days. A costectomy was done, March 29. The wound healed after three months under simple drainage. When the patient was admitted to the hospital he weighed 160 pounds, and by the time the wound had healed he had regained all the weight lost during the acute stage of his illness. A routine examination, as well as a study of the roentgenograms made immediately after the wound had healed, revealed no abnormality other than a mass of adhesions and thickened pleura in the region of the scar. No further symptoms developed until July 27, when the temperature suddenly rose to 103, with malaise and all symptoms of a systemic infection. Physical examination and roentgenograms detected no change in the findings from those of the previous examinations. In the absence of other abnormal findings the chest was aspirated in the line of the old cicatrix; this revealed a small amount of pus which contained streptococci in pure culture.

CASE 2.—Jan. 2, 1918, a patient previously admitted with measles developed a bronchopneumonia and an empyema, which subsequently was treated by simple drainage. When the wound healed, April 15, the pulse rate averaged 120 and the afternoon temperature rose to 99.5. He was also 20

pounds underweight. In spite of a forced carbohydrate diet he gained very slowly. July 5, during a routine examination, the following findings were recorded: "The pulse rate, which is 104 even in the recumbent position, is markedly accelerated on exertion, and is accompanied by dyspnea. The hands are cold and moist. There is usually an evening temperature of 99 to 99.5 F. The expansion of the right chest is limited; the percussion note is resonant except over the scapula and between the inner border of the scapula and the vertebral column." When this dull area was aspirated, sterile pus was found. Subsequently the cavity was drained and healed under Carrel-Dakin treatment. At the time of his discharge in December, 1918, he had gained 4 pounds in weight.

COMMENT

The two histories just recorded illustrate the types most frequently encountered in the twenty-two recurrences I have observed. In the reaccumulations in the immediate vicinity of the first operation, physical and roentgen-ray examination often failed to differentiate between small collections of fluid and the thickened pleura which exists in practically every perfectly healed case. It is for this reason that the cicatrix was always aspirated first when there were symptoms of recurrence and the chest findings were apparently negative. Collections of pus in other parts of the chest could be definitely localized by physical and roentgen-ray examinations.

Small collections of fluid in the chest gave physical findings which varied according to their location. The most constant physical finding was an impairment of the percussion note; at times, however, it was impossible to differentiate between fluid and thickened pleura. It was also observed that areas of dulness which were entirely separated from the diaphragmatic dulness were usually due to fluid; those which merged gradually into the diaphragmatic dulness, particularly when associated with an abnormally high diaphragm, could be more readily accounted for by the cicatricial tissue which was present. There was some variation also in the character of the note elicited. In small sacculations there was moderate dulness instead of the flat resistance which is encountered in massive exudates. Tactile fremitus was diminished over the central area of fluid collections except in those located anteriorly over the right apex and along the hilum of the lung; in these areas increased fremitus and marked bronchial breathing were the rule. Auscultation was often unreliable and misleading, although it may be definitely stated that usually the respiratory sounds were distant. Areas of dulness in the axilla were always accompanied by diminished breath sounds and diminished vocal fremitus. In order to determine definitely the cause of these abnormal physical signs, it was found preferable to study them carefully in conjunction with stereoscopic plates before diagnostic aspiration was attempted.

Not only were stereoscopic plates preferable, but usually they were absolutely necessary. The plates were examined for abnormal shadows denoting the presence of pus pockets, for intrapulmonary lung markings, and for evidence of abnormalities in the pleura. The lesions at the apex were usually easily discovered because they produced a deep shadow, but a careful examination was always required to determine whether the pus collection was anterior or posterior to the lung. In the axillary shadows there was always difficulty in distinguishing between fluid and thickened pleura. Frequently, particularly when a cavity had closed after draining but a short time, a dense shadow extended from the apex to the diaphragm along the axilla; with the gradual devascularization of the cicatricial tissue which causes this shadow, the plates became perfectly clear in this area and eventually resembled a partial pneumothorax. It was evident from many observations of this character, and from a comparison of the findings at secondary operations with the plates, that frequently thick scar tissue did not intercept the roentgen ray. Aspiration was often the only means of determining the nature of these abnormalities in the axilla. The pulmonary striae along the bronchi and their smaller branches were usually very heavy on the affected side. They could be readily followed outward from the hilum, and served as a guide in locating the border of the lung. In abscesses these lines radiated from the point of infection.

Two cases of lung abscess were observed at intervals during the period that these characteristic markings were developing. One, which was found just under the pleura at operation, had probably existed from the time of the initial bronchopneumonia. Both the lung and the adjacent pleura were irregularly thickened. The second case was kept under observation until dense radiating lines had formed through the involved lobe, and the pleura overlying the process showed evidence of inflammation. Both cases would have been confused with pleural pus collections if they had not given these characteristic plates and if numerous râles had not been heard on auscultation. It is certain that aspiration is the only way of definitely deciding the cause of many of the abnormalities found in the plates.

The treatment of these recurrences depended entirely on the character of the fluid found. When it was clear and sterile, aspiration was all that the case required. With the exception of one which was completely evacuated at the diagnostic puncture, all the purulent fluids were drained by thoracotomy. Cases which have shown a recurrence at the site of the primary operation frequently have recurred again in spite of the greatest care exercised in treating them; in many of these cases of second recurrence there were small pieces of necrotic bone in the sinuses. The care of these cases required the closest cooperation between the surgeon, the internist and the roentgenologist.

Curative Workshop and Vocational Apprenticeship System.—A plan has been developed by the federal board for vocational education, with the cooperation of the commandant of the Navy Yard and the commanding officer of the Naval Hospital at Norfolk, Va., for the establishment of a combined curative workshop and subsequent vocational apprenticeship system, which may be used as a standard for all Navy yards. The general features of the plan as outlined by the board are as follows: ambulant convalescent patients may be given therapeutic training through appropriate operations and exercises in the shops of the Navy Yard, but under conditions which duplicate actual productive shop conditions. The federal board's representative advises with the men and with the surgeon in charge. These two men decide on appropriate work. In the office of the yard is another representative of the board, a coordinator, who receives the prescription and arranges for training under a competent mechanic who has also been trained as an instructor by the federal board. Men having completed their period of hospital training and therapeutic training may continue to receive vocational training in a wide variety of Navy Yard occupations. Neither in the therapeutic phase nor in the vocational phase is it assumed that men will necessarily eventually become employees of the Navy Yard. The work is carried on at the expense of the federal board, with the cooperation of the Navy Yard authorities.

THE THERAPEUTIC ASPECT OF BLOOD TRANSFUSION *

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The recent wave of enthusiasm for transfusion was initiated by the introduction of simplified methods for transferring blood, the elimination of dangers, and an increasing appreciation of the therapeutic value of the procedure. The nearer one approaches giving blood as it exists within the vessels of the donor, the nearer one attains ideal conditions. Numerous procedures have been suggested to render the technic of anastomosing vessels less difficult; but none have survived the practical test, so that indirect methods have gradually taken their place. These are of two types; those supplying whole unmodified blood, and those which add an anticoagulant. The first group is represented by the method of Kimpton and Brown,[1] by that of Lindeman,[2] and by the one[3] described by me in this journal some years ago.[4]

These methods mechanically overcome the technical difficulties of direct transfusion. However, the problem has also been attacked by rendering the blood noncoagulable by the addition of small quantities of sodium citrate.[5]

The relative merits of unmodified blood and of blood thus modified by means of sodium citrate is one of the points of active interest in connection with this subject. As is well known, the latter method has recently gained considerable vogue and, indeed, by some is claimed to render other methods of transfusion unnecessary. From my point of view, transfusion of unmodified blood cannot be so lightly set side.

One of the differences between unmodified and citrated blood is manifested clinically by the more frequent occurrence of reactions with the latter method. Drinker and Brittingham[6] state that, after citrate transfusions, febrile reactions occur in 60 per cent. of cases and a chill in 57 per cent. In my series of unmodified blood transfusions, febrile reactions have occurred in about 10 per cent. and a chill in about 3 per cent. This difference in the number of disagreeable reactions is due to an abnormal condition of the blood platelets and the red cells in the citrated blood. It has been shown by Novy and DeKruif[7] that blood acquires toxic properties in direct proportion to the path it has traveled toward coagulation. Even though it does not absolutely coagulate, processes take place within it as soon as it is poured forth from the vessels which change its nature and render it less suitable as a body fluid. These coagulative changes have been shown by Drinker and Brittingham to be associated with the platelets which become abnormal as soon as they leave the vessel. They write:

> The grade of abnormality of these elements depends to some degree on the extent . . . of the handling which they are compelled to undergo in the varied methods of transfusion. . . . There is no practical method for citration of the large quantities of blood needed for transfusion which certainly prevents the early changes of coagulation. The methods in use simply arrest the process. The truth of this statement will be testified to by many who have used the citrate method with complete coagulation of the blood at a critical point in the transfusion.

Methods for using whole unmodified blood can probably be similiarly criticized, though to a less extent. Here there is infinitely less handling, and coagulation cannot have progressed so far since the blood is out of the body a shorter period. By the method described above,[3] the blood is out of the body about five seconds.

Drinker and Brittingham have also shown experimentally that "the mere addition of a dose of sodium citrate" to red cells induces slight abnormality, as evidenced by an increased fragility and an increased tendency to hemolyze. The corpuscles are damaged by sodium citrate operating as a specifically harmful substance. This is of particular importance when transfusion is performed in hemolytic diseases.

These studies seem to show, what *a priori* would seem to be most likely, that from a biologic point of view the delicate blood tissue must be altered in the carrying out of a transfusion of citrated blood. For diseases in which blood is indicated for itself, that is, when it is required as a tissue, as in the various anemias, especially when the disease is hemolytic in nature, there can be no question as to the relative merits of unmodified blood which runs almost from vessel to vessel and that which has been handled, chemically altered and allowed to remain for an indefinite length of time outside of the body. The transfusion of unmodified blood is the procedure of choice. It must be admitted, however, that the technic for giving citrated blood is simple, and that therefore in cases of hemorrhage, in which the purpose is not so much to supply normal blood for pathologic blood as to furnish the impoverished circulation with an adequate supply or to bring about cessation of hemorrhage, citrated blood may serve as a substitute.

It has long been recognized that unless the donor and patient belong to the same iso-agglutinin group, iso-agglutination and isohemolysis are possible dangers to the patient. Agglutination frequently occurs with hemolysis, but hemolysis is always associated with or preceded by agglutination. Therefore, if tests are made which eliminate the possibility of aggutination, hemolysis is also automatically guarded against. Although any of the recognized methods for testing this phenomenon may be employed, the microscopic

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* Read before the Section on Pharmacology and Therapeutics at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Kimpton, A. R.: Boston M. & S. J. **178**: 351 (March 14) 1918.

2. Lindeman, Edward: Simple Syringe Transfusion with Special Cannulas, Am. J. Dis. Child. **6**: 28 (July) 813.

3. The mechanical principle involved in the instrument used in this method is the establishment of two channels by means of which a record syringe is automatically connected alternately with a vein of the donor and then with one of the recipient. At the same time that the record syringe is connected with the donor for the aspiration of blood, a syringe with saline solution is connected with the recipient, and vice versa. It is this immediate and continued flushing with salt solution of that channel through which blood is not passing that insures freedom from clotting. The technic is as follows: Alongside the instrument which has been fixed to a table, the arms of the patient and the donor are placed. The tubes leading from the instrument are connected to the cannulas after the latter have been inserted through the skin into the recipient's and the donor's veins. A record syringe is then inserted into the instrument, and blood is aspirated. When the syringe is filled, the stopcock is turned and then the blood is injected. Simultaneously saline solution is forced through the channel which is not being used for the aspiration or injection of blood. This procedure is continued until the desired amount is transfused. In order to prevent clotting, a stream of ether is played on the barrel of the record syringe while it is being filled with and emptied of blood. In this way only one record syringe is required, regardless of the amount transfused.

4. Unger, L. J.: A New Method of Syringe Transfusion, J. A. M. A. **64**: 582 (Feb. 13) 1915; Recent Simplifications of the Syringe Method of Transfusion, *ibid.* **65**: 1029 (Sept. 18) 1915; Transfusion of Unmodified Blood: An Analysis of One Hundred and Sixty-Five Cases, *ibid.* **69**: 2159 (Dec. 29) 1917.

5. Lewisohn, R.: M. Rec. **87** (Jan. 23), 1915; Weil, Richard: Sodium Citrate in the Transfusion of Blood, J. A. M. A. **64**: 425 (Jan. 30) 1915.

6. Drinker, C. K., and Brittingham, H. H.: Transfusion Reactions, Arch. Int. Med. **23**: 133 (Feb.) 1919.

7. Novy, F. G., and DeKruif, P. H.: Anaphylatoxin and Anaphylaxis, J. A. M. A. **68**: 1524 (May 26) 1917.

methods recommended by Moss[8] or Lee[9] and by Rous and Turner,[10] are the simplest and quickest. By the method of Moss, mixtures of the patient's cells with Groups II and III serums are made and examined under the microscope. In this way the patient is placed in his proper group.[11] The proper subject is selected from a list of donors whose groups are known and whose Wasserman test is negative.

When standard Groups II and III serums are not on hand and when donors are not so available or are not classified according to groups, the more direct method of Rous and Turner[12] is of value. According to this method the blood of each donor is tested against that of the recipient without first determining its respective group. If no agglutination takes place, the donor is suitable as far as iso-agglutination and iso-hemolysis are concerned.

In New York there is a group of professional donors who have been used repeatedly, indeed, too often. The opportunity was therefore presented to observe the effect on the donor of giving blood repeatedly for transfusion. This is a study of clinical interest simulating conditions in which hemorrhage occurs from time to time in considerable amounts, and seems therefore worthy of greater attention than it has been heretofore granted. Within a few days, signs of secondary anemia appear which will be recovered from entirely provided sufficient time is allowed to elapse. If, however, the donor submits to repeated and frequent transfusions, the anemia may become intense. Two donors had a hemoglobin of only 55 per cent., in spite of the fact that four and eight weeks had elapsed since their last transfusions. One of these men had been a donor for four and one-half years and had given blood on fifteen occasions. Because of the anemia he went to work at a mountain summer resort where he had plenty of food and fresh air; but after three months his hemoglobin was only 67 per cent. For the succeeding three months he received arsenic and iron (six months after his last transfusion), and his hemoglobin rose to 98 per cent.

The statistics relating to another donor are interesting and seem worth recording as showing how much the body can withstand in this respect: At the time of this man's first transfusion, he weighed 175 pounds. Six and a half years later he weighed 201 pounds. During this period *he underwent sixty transfusions, donating about 50,000 c.c. of blood,* for which he had received $1,700. This man, therefore, had lost his total blood volume ten times during this period. His hemoglobin, taken nine weeks after his last transfusion, was 70 per cent., otherwise he was apparently in good health.

After donors have given up blood repeatedly over a period of years, certain changes result. There is a definite secondary anemia which in some cases may be intense. There is poikilocytosis and anisocytosis of various degrees. In no case were nucleated reds observed. The leukocytes are increased in number, varying between 10,000 and 14,000. The differential count is about normal. The anemia is probably due to the fact that sufficient time is not allowed between transfusions for the rise to normal of the hemoglobin and red blood cells. In one case observed, this anemia was not permanent and the donor recovered from it. This fact is of practical importance because in pernicious anemia in which repeated transfusions are necessary, a particular donor often seems to be able to institute remissions when other donors fail.

DOSAGE

With blood, as with other therapeutic measures, the amount given is a factor in determining the result. A donor can with safety supply one quarter of his blood volume. Just how much of this a patient should be given is dependent on various factors. For infants the usual dose should be from 80 to 150 c.c. For adults, from 800 to 1,000 c.c. This amount, of course, varies with the weight, the condition of the patient's heart and lungs, and the disease for which the transfusion is being performed.

Overtransfusion from the donor's standpoint is evidenced by an increase of the pulse and respiratory rates, repeated yawning or deep sighing. Changes in the rhythm of respiration may occur before a change of the pulse rate. If these symptoms appear, the transfusion should be discontinued. Pallor and sweating are occasionally followed by collapse. From these symptoms he will quickly recover if the transfusion is discontinued.

As regards the patient, hypertransfusion is more serious. This may lead him to complain of precordial distress, headache, backache, or pain in his legs. A more important sign, however, is a short, sharp cough. If the transfusion is continued, the cough will be repeated. The cough, when it does appear, occurs irrespective of the rate at which the blood was transfused. One should *not transfuse more than 200 c.c. after the first cough.* In only one case has this sign been disregarded. In this instance 500 c. c. were transfused after the first cough. This was the only case in my series in which transfusion was complicated by hypertransfusion; pulmonary edema developed, and the patient died.

INDICATIONS FOR TRANSFUSION

The indications for transfusion[13] are: (1) hemorrhage; (2) diseases of the blood; (3) toxemias; (4) infections; (5) shock, and (6) general debility.

1. *Hemorrhage.*—This is one of the conditions in which blood transfusion is the ideal form of treatment. It serves not only to replace loss of blood but also to check actual bleeding. In acute hemorrhages, the results are naturally more brilliant than in less fulminating bleeding. In about 85 per cent. of the cases of acute hemorrhage, bleeding can be stopped by one transfusion.

2. *Diseases of the Blood.*—In secondary anemia, the results are satisfactory, provided the primary

8. Moss, W. L.: Blood Transfusion, J. A. M. A. **68**: 1905 (June 23) 1917.

9. Lee, R. I.: Brit. M. J. **2**: 684 (Nov. 24) 1917.

10. Rous, Peyton, and Turner, J. R.: A Rapid and Simple Method of Testing Donors for Transfusion, J. A. M. A. **64**: 1980 (June 12) 1915.

11. If the patient's cells are agglutinated both by Group II and Group III serums, the patient is in Group I; if they are agglutinated by neither II nor III, he is in Group IV; if by III serum and not by II, he is in Group II; and if by II serum and not by III, he is in Group III.

12. The following simplifications of the method of Rous and Turner have been satisfactorily employed by me: In a pipet used for counting leukocytes, one part of 10 per cent. sodium citrate and ten parts of the patient's blood are mixed. A similar specimen of the donor's blood is collected. From these specimens, by means of a third pipet, are mixed nine parts of the donor's blood to one part of the patient's, and also one part of the donor's to nine parts of the patient's. A drop of each of these mixtures is put on a slide, a drop of physiologic sodium chlorid solution is added, a cover glass is applied, and examination is made under the microscope. Any clumping, not rouleau formation, is agglutination, and this donor should not be used. Usually the clumping appears immediately, but it is wise to observe the mixture for fifteen minutes.

13. Unger, L. J.: Transfusion of Unmodified Blood: An Analysis of One Hundred and Sixty-Five Cases, J. A. M. A. **69**: 2159 (Dec. 29) 1917. Libman and Ottenberg, Blood Transfusion: Indications, Results. Am. J. M. Sc., **150**: 36 (July) 1915.

cause is removed. In pernicious anemia, transfusion yields results superior to any other mode of therapy. Frequently it acts as a lifesaving measure by initiating the onset of a remission. There is no evidence, however, that the disease can be permanently cured in this way. Nevertheless, by repeated transfusions, remissions can be effected and the lives of some patients made useful for years. In such cases, if possible, the same donor should be successively employed. The amount of blood does not seem to be the determining cause of a remission. Small amounts have often been of as much value as large amounts. When transfusion is successful, the increase in strength and appetite is very striking. It will relieve the anemia and the symptoms secondary to it—dyspnea, palpitation, mental symptoms, etc. In no instance did it lead to an increased secretion of hydrochloric acid by the stomach. If transfusion is repeated because the first one failed to bring about a remission, a different donor should be employed, and this procedure should be continued until, if possible, the desired effect is achieved. In such cases, retransfusion should be resorted to before all the ground that has been gained is lost. In certain cases, however, even this procedure is of no avail.

Hemophilia is not cured by transfusion; but for the bleeding of hemophilia, it is practically a specific. It will succeed when all other methods fail. Valuable time should therefore not be lost in attempts to control bleeding by other methods, since we have at our command a specific that will not only control the hemorrhage but also replace the lost blood.

In purpura hemorrhagica, the results of transfusion are only fairly good. Repeated transfusions are often necessary to control the bleeding.

In acute lymphatic leukemia, only a temporarily favorable effect can be secured by transfusion, even though we withdraw a large amount of blood by phlebotomy and make use of a massive transfusion obtained from two donors, or employ repeated transfusions, or carry out transfusions very early in the disease.

In bleeding of the new-born, transfusion is a specific. An almost exsanguinated infant, too weak to cry and in a dying state, is transformed immediately into an apparently healthy, rosy and crying baby. As in hemophilia, it will save the lives of those who are not helped by subcutaneous injections of serum or blood. Temporizing by using less effective measures may cost the baby's life. This is especially true in cases of melena neonatorum, which are the most serious because we do not know just when the hemorrhage began or how much internal hemorrhage is taking place. Just as soon as the diagnosis of bleeding from the stomach or the bowel of the new-born is made, transfusion should be performed.

3. *Toxemia.*—Transfusions have long been used in a limited number of types of toxemia. It is in this group that the indications ought to be enlarged, especially in the toxemia of pregnancy and in toxemias associated with acute infections, such as pneumonia and typhoid fever.

4. *Infections.*—In localized pyogenic infections, transfusion will increase the patient's vitality and aid in overcoming the infection.

In bacteremia when the source of the organisms can be found and eliminated, the results are excellent, as in cases of sinus thrombosis following mastoiditis in which the jugular vein has been ligated. In postpartum sepsis only one patient out of about twenty recovered; the others showed merely temporary improvement.

5. *Shock.*—Transfusion is at times valuable in shock. It seems possible that the nearer the transfusion approaches the advent of the shock, the more likely it is to be successful.

6. *General Debility.*—Transfusion should be used preliminary to operations as a supporting measure, and thus lessen the postoperative mortality. In debilitating conditions, such as inoperable carcinoma and pemphigus, it will improve the patient's general condition and prolong life.

SUMMARY

There is a far greater number of reactions following transfusions with citrated blood than with unmodified blood. This is due to alterations in the blood cells. The platelets undergo early coagulative changes. Sodium citrate acting as a harmful foreign substance renders the red cell more fragile and more easily hemolyzed. This undesirable result is of especial importance in hemolytic diseases.

Transfusion of whole unmodified blood is the procedure of choice when blood is required as a tissue. When it is wanted merely to replenish an impoverished circulation with an adequate supply, citrated blood may serve as a substitute.

For the selection of donors, a simplified and rapid microscopic method, such as that suggested,[12] is desirable.

Repeated withdrawal of blood for transfusion may produce in the donor an intense secondary anemia with an increase in the leukocyte count. In the illustrative case reported, sixty transfusions were performed within a period of six and one-half years, with the removal of fifty liters of blood.

The onset of hypertransfusion is evidenced by the patient's giving vent to short, sharp coughs. This signal has been of decided value as a warning of impending danger. The giving of more than about 200 c.c. of blood after the occurrence of "the signal cough" may prove fatal.

Transfusion yields moderately good results in infectious and debilitating conditions. The best results are obtained in toxemias, in shock, in cases of hemorrhage, and in diseases of the blood, in which it is frequently of life saving value.

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ABSTRACT OF DISCUSSION

DR. E. W. PETERSON, New York: Any one who has done a large amount of this work will encounter these miracles. As has been pointed out, whole blood administered by transfusion as a hemostatic is such. Most of my work has been with the citrated method, but I think just about as good results are obtained from the citrated method as from the modified.

DR. FRANK W. HARTMAN, Washington, D. C.: My experience has been with the citrate method. I want to ask Dr. Unger about these reactions, whether a reaction was really anything more than uncomfortable to the patient, and whether the results in the final stages were better than with the unmodified blood mixed with the whole blood.

DR. LESTER NEWMAN, Washington, D. C.: My experience has been entirely with citrated blood. I agree with Dr. Peterson as to some of the failures.

DR. E. LIBMAN, New York: To avoid difficulties resulting from errors in the agglutination tests, it is wise when citrate transfusion is to be done to make tests with citrated speci-

mens. My experience with transfusions in cases of infections leads me to believe that they act only as a supportive measure. In cases of infection, the blood itself is usually bactericidal. What we need are methods for developing tissue immunity. Some observers have been misled into thinking that transfusions act in a bactericidal fashion because the bacteria often disappear from the blood after transfusion. However, this usually only happens if there has been a reaction after the transfusion. When, in a case of general infection, a reaction occurs after transfusion, the blood is apt to become free of bacteria for a day or two. The same thing will happen, however, if you get a reaction after injecting a salt solution. In some interesting studies made in cases of streptococcus endocarditis by Dr. Epstein, with a colloidal preparation of iodin, the bacteria would sometimes disappear from the blood for three or four days, and then return. Too much stress cannot be laid on the proper examination of the donor. It is not sufficient to make the tests—the donor must be examined from head to foot. This is of the greatest importance in excluding all lesions of syphilis unaccompanied by a positive Wassermann reaction. To avoid the effects of putting in large amounts of blood, it is important to cut down the fluids before the transfusion is performed. In cases of cardiac disease, especially mitral stenosis, great caution must be used as regards the amounts of blood given. The cough symptom as described by Dr. Unger is very valuable. The two most valuable methods are the Unger and the citrate methods. The citrate method appears to cause more reactions than the Unger method; in febrile cases, both methods are apt to produce chills and rises of temperature. In patients in very poor condition from toxic diseases, in which it is important to avoid a chill, the Unger method may be preferable. It is necessary that studies be made as regards the effects of and the contraindications to the use of transfusions in cases accompanied by various renal conditions. I know of two instances in which a citrate transfusion caused a temporary blocking of the kidney. It may be found that the same will occur in cases of renal disease when other forms of transfusions are used.

FOREIGN BODIES WITHIN THE EYEBALL *

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The literature on this subject has been so thoroughly reviewed by Würdemann, Ramsey and others that we may pass at once to the practical consideration of the various points that naturally arise for decision and action; and if we can succeed in so presenting the most important problems as to develop a full discussion, the result would be the ripened conclusions of American ophthalmology.

The whole matter, so far as the patient and the surgeon are concerned, can be resolved into the three primary questions:

1. What are the location and character of the foreign body?
2. What are the proposed measures of relief?
3. What will be the probable immediate and remote results?

LOCATION AND CHARACTER OF FOREIGN BODY

The answer to the first question involves a careful analysis of many circumstances and facts. Is the foreign body actually within the globe, or has it been withdrawn through the point of entrance, or has it gone entirely through the globe and found lodgment in the postocular tissues? These questions are fundamental and yet may involve perplexing difficulties. The media may be so clouded by hemorrhage or corneal, lenticular or vitreous opacities that a satisfactory examination with the ophthalmoscope or with other instruments for direct inspection would be impossible. The foreign body may be of such a nature as to offer no resistance to the roentgen rays, or it may be so minute as to cast no perceptible shadow, or it may be nonmagnetic and hence would give no response to the magnet or sideroscope. Here it is that the history may be of the greatest value, as some illustrative cases will emphasize.

We have all many times encountered injured eyes in which it was difficult to determine whether the foreign body was just within or just without the sclera, especially when the foreign body was evidently driven with considerable force, or was small, or was not impervious to the roentgen rays. Injuries of this kind are, frequently, bird shot injuries with intraocular hemorrhage; and, fortunately, the roentgen ray will usually be sufficient to determine the location. Occasionally the presence of postocular hemorrhage with proptosis will point to traumatism behind the globe and will confirm the roentgen-ray findings. In such cases, if the traumatism is not excessive we may avail ourselves of the ten-day period of probation admissible in all cases of eye injury without risk of sympathetic ophthalmia, and many illuminating features may develop. The postocular hemorrhage after a short time may show as a dark discoloration about the lids, and the swelling will subside and the inflammatory features recede to such a degree that we may safely persist in our efforts to save an eye that might have been sacrificed under the suspicion of a retained foreign body. As a rule, small aseptic bodies, passing entirely through the eyeball and lodging in the retro bulbar cellular tissue, may be allowed to remain, and they generally give rise to no future trouble.

Some regard may be paid to the propelling force and to the distance traversed by the foreign body before entering the eye as bearing on the question whether it has lodged within the eye. If it is within the globe and cannot be extracted, an enucleation or evisceration will be the probable result sooner or later. If it has passed entirely through the globe, the prognosis will depend largely on its path. If it enters the sclera posterior to the ciliary region and in its passage has produced very little hemorrhage and no injury to the macular region, the result may be favorable as to the preservation of vision. If, however, it passes through the lens or ciliary body with much laceration of the tissues, the primary wound will probably be followed by inflammatory changes leading to loss of the eyeball.

Having determined the location of the foreign body to be within the globe, we must next consider the toleration for such bodies by the different anatomic structures, which vary greatly in this respect, and also the chemical and bacteriologic character of the foreign body. Generally, those tissues which are most abundantly supplied with nerves and blood vessels are the least tolerant of foreign invasion. The iris and ciliary body especially resent the presence of an intruder, while the lens, if slightly wounded, may indefinitely accommodate a sterile particle of small magnitude. The posterior segment of the retina and choroid may, by throwing around the foreign body a protecting cov-

* Read before the Section on Ophthalmology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

ering of plastic exudate, bear the intruder for a considerable time, while the vitreous with its sluggish reaction may allow the foreign body to float freely in its mass. The chemical nature of the foreign body greatly influences its tendency to produce reaction; thus, glass may be harbored kindly, while copper will provoke a prompt and decided response. But the most important feature in the character of a foreign body relates to its bacteriologic status. All portions of the internal structures of the eyeball offer good media for the propagation of various micro-organisms, but many of these bodies before entering the eye have been sterilized by heat, and a study of this factor may be helpful in arriving at a wise conclusion. Much depends on the virulence of the organisms that may be introduced with the foreign body. If an active infectious process is once established within an eye containing a foreign body, the prognosis is more unfavorable. I have, however, seen cases of vitreous infection, demonstrated as such by microscopic findings, in which a rather extensive intra-ocular operation succeeded in mechanically removing all of the infected tissue, with the preservation of the globe.

With reference to the size, we might say that the larger foreign bodies involve greater hazard by virtue of the traumatism which they inflict on their entrance, although the promptness and ease with which they are generally removed would be factors in their favor.

It has so happened in my experience that eyes wounded with glass do not as a rule contain the pieces of glass. The wounds are frequently badly lacerated, but may yield a fairly good result.

As bearing on the nature of a retained foreign body, the presence of a distinct siderosis is quite characteristic of a ferruginous body which has been undergoing partial or complete absorption.

MEASURES OF RELIEF

The method of removing a foreign body from the eye depends entirely on its character, size and location. A natural division as to character would be magnetic and nonmagnetic, the former being more easily removed because of the availability of magnetic influence. Much has been written about the kind of magnet that is most efficient. The dictum of Haab that "He who has the strongest magnet will get the best results" must be taken with some modification.

The facility with which the magnet may be manipulated, thus bringing the electrode into the most favorable approximation to the foreign body, must constitute a most important factor. My personal preference is for the improved Sweet magnet, which has the usual power requisite for attracting magnetic bodies, and in addition its electrode can be brought in contact with the foreign body in any part of the globe. The Haab magnet, the Victor magnet, the intrapolar magnet and other large magnets are especially applicable to those cases in which it is sought to remove the foreign body through the anterior chamber in accordance with the views advocated by Haab.

Since the introduction of the more accurate methods of localization by the roentgen ray, the relative value of the medium sized magnets as compared with the giant magnets has been advanced. I think no one now would prefer the giant magnet in the case of large foreign bodies, on account of the violent force developed, which might do harm to uninjured structures; but it has some advantage in those cases in which the foreign body has not been accurately located and in which it is situated in the anterior segment of the globe. Even in the case of foreign magnetic bodies in the vitreous, after a scleral incision, the point of the giant magnet may be applied to the opening of the wound, either alone or in conjunction with magnetized probes, forceps or scissors; and if unsuccessful, this procedure may then be followed by the use of the Sweet magnet, which has the advantage of greater ease in accurate manipulation.

It is a matter of considerable importance to decide wisely as to the route to be adopted in the removal of a foreign body, whether by the anterior or the posterior route. And it must be admitted that there are advantages in both methods, and the difficulty is in discriminating between the two in each individual case. My own experience has emphasized the safety and practicability of removing foreign bodies through a scleral incision whenever the foreign body is easily accessible by this route. I have not seen retinal detachment at the seat of the incision follow such a procedure, and when detachment has occurred it was due to the inflammatory process induced by the presence of the foreign body and by the original traumatism.

On account of the dangers of iridocyclitis, with a possible transferred ophthalmitis, I have a profound respect for the anterior segment of the eyeball, and would prefer to employ no procedure which would add anything to the traumatism in this region. Unless the conditions are such that the foreign body can be smoothly extracted by this route, I should prefer to invade the posterior segment of the globe rather than the ciliary zone.

RESULTS

The immediate and remote results must have regard, not only to the injured eye, but also to the fellow eye. In general terms, we might say that the immediate result in the injured eye will be favorably influenced by the following factors: accurate localization, the early removal of the foreign body, the minimum of traumatism by the flight of the missile and the subsequent operative procedure, the noninvolvement of the ciliary body, the lens and the macula region, and the negative chemical and bacteriologic character of the foreign body.

It must be remembered that the victory has not been won when the foreign body has been brilliantly extracted from the interior of the globe. We must still await, some times through weeks and months and years, the final processes of degeneration, retinal detachment and clouded media which may bring but grief and pain for promised joy.

We must remember not only that the insidious danger of sympathetic ophthalmia lurks in the presence of the foreign intruder, but also that the seeds of disaster are sometimes sown in its pathway, springing up into that fateful fruitage which brings total blindness with its blighting brood of unavailing regrets.

ILLUSTRATIVE CASES

The purpose of this report of Cases 1, 2 and 3 is to emphasize some important features pertaining to the localization, the extraction and the final result in cases of exceedingly minute foreign bodies within the globe. We have always recognized the full significance of the retention within the eyeball of all foreign bodies of a magnitude capable of being determined by the ordinary methods; but some special consideration might be given

to the behavior of those particles so extremely small as to cast no shadow, after the skilful application of the most powerful and efficient roentgen light.

As to localization, I might say that we have felt since the introduction of the Sweet method that all magnetic metallic bodies could be certainly located with accuracy; but I have encountered some recent cases that

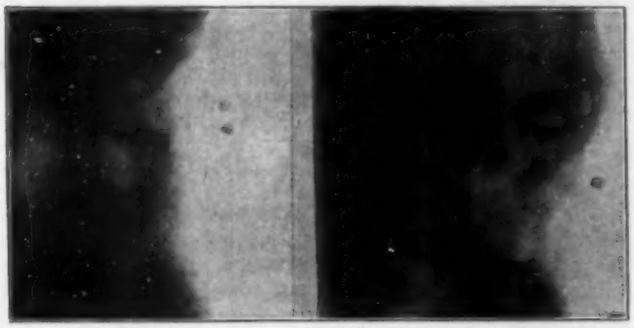

Fig. 1 (Case 3).—Roentgenographic appearance of the eye before (left) and after (right) attempt at extraction of the foreign body. The first picture showed a distinct shadow of a foreign body located as shown in the diagram, Figure 2. The second picture, taken some time after the attempt at removal with the giant magnet, shows no foreign body, but the patient had a complete secondary cataract with a marked degree of siderosis.

show that some particles of this kind may elude the roentgen ray and still be clearly perceived by the ophthalmoscope and extracted by the giant magnet. The cases were examined by roentgenologists of unquestioned ability and extensive experience, who have repeatedly rendered me the most valuable assistance in the localization of very minute masses of foreign matter within the globe, and I esteem it a pleasure to bear testimony, unreservedly, to their patience and skill.

Case 1.—Mr. R. of Weatherford, Texas, came to me with the history of a slowly developing cataract in the right eye, beginning some weeks after the supposed receipt of an injury to the eye four months previously. He had been carefully examined by a competent ophthalmologist who reported traumatic cataract from concussion, a condition which we all frequently have occasion to observe.

On my first examination with lenses of high power, I discovered on the temporal side of the sphincter pupillae a minute opening through the iris tissue, in diameter equal to the cross-section of a cambric needle. This opening at first appeared dark in color, like a speck of pigment, but on lateral illumination I could see the opaque lens substance through this minute aperture. I then applied the giant magnet directly to the corresponding area of the cornea, and the lens and iris were observed to advance slightly. I described the occurrence to the roentgenologist, and requested a close examination of the anterior segment of the globe. After repeated trials, no foreign body could be definitely located. I then invited the roentgenologist to be present at the proposed extraction of the steel. An incision was made along the corresponding arc of the limbus, and through this incision I passed a pair of fine steel iris forceps, and up to the minute opening in the iris above described. Then, while I held very firmly to the forceps, the tip of the giant magnet was brought in contact with the forceps at the point of entrance of the latter into the anterior chamber. Then the current was turned on and the magnet and attached iris forceps were gently withdrawn from the eye, bringing out of the lens and through the needle hole in the iris an exceedingly delicate piece of steel. With the most accurate jeweler's scales available the foreign body was declared imponderable, but was estimated to weigh approximately one-thousandth of a carat. Its length was 2.2 mm., its breadth was 0.2 mm. and its thickness was that of the finest thread. The accident occurred while the patient was standing a few feet from one of his employees, who was using a chisel on a piece of marble. The vision was not at first impaired, and the pain and reaction were insignificant; but at the time of my examination, the lens was completely opaque. It is interesting that so slender and so delicate a piece of metal should be driven such a distance and with such force as to become completely embedded in the lens and yet remain unbroken by its impact.

The indications are that a cataract extraction at any subsequent time will secure for the eye useful reading vision.

Case 2.—Mr. L. A. of Dallas was operated on in conjunction with my partner, Dr. Seay. The history clearly traced the injury to a blow which the patient struck on a chisel, and the vision became at once impaired, but gradually cleared up, so that a minute piece of metal was distinctly seen with the ophthalmoscope near the center of the vitreous chamber. The trabeculae of the vitreous were broken down in the lower segment of the vitreous, thus allowing limited movement of the metal when the eyeball was quickly rotated.

The roentgen ray was called into requisition for confirmation, as a question had arisen as to whether this movable mass was of metal or of pigment. No shadow whatever was developed, and the magnet failed to make any impression on the mass. But the ophthalmoscopic picture was so conclusive that we made an incision in the region of the equator and between the external and inferior rectus muscles. Through this scleral opening we passed into the globe delicate steel iris forceps until their points approximated the foreign mass. Then we applied the tip of the giant magnet to the forceps at the point of entrance of the latter into the vitreous chamber. The current was then turned on and the magnet and forceps gently withdrawn from the eye, bringing along a very minute, polyhedral piece of steel. The eye was again examined with the ophthalmoscope, and a piece of metal was discovered in the central area of the vitreous. So we reinserted the forceps and applied the magnet as before; when they were withdrawn from the eye, the remaining piece of steel was found attached to the distal extremities of the forceps.

The ophthalmoscopic examination showing no more foreign material, a double conjunctival flap was carried by mattress sutures over the scleral wound, and the usual surgical precautions followed. After a lapse of more than ten months, the media are still clear and the vision is normal.

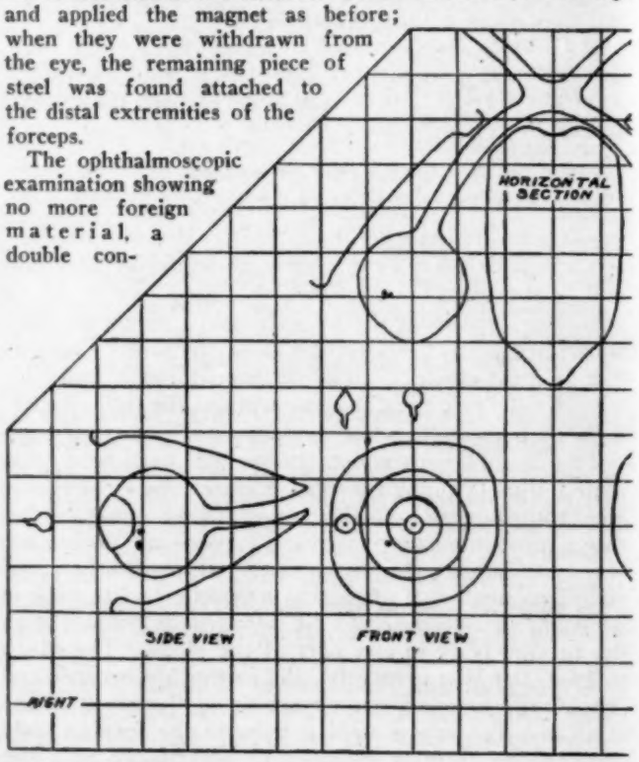

Fig. 2 (Case 3).—Diagrams showing the location of the foreign body.

Case 3.—Mr. G. H. of Groesbeck, Texas, was struck in the eye, July 5, 1915, by a piece of steel, causing pain and immediate reduction of the vision. The vision then improved; and when the patient was seen, July 6, by my partner, Dr. Seay,

the vision was 20/40. The roentgenogram at that time showed a distinct shadow of a foreign body 1 mm. in diameter and situated 12 mm. back of the center of the cornea. Dr. Seay applied the giant magnet to the point of entrance of the steel without producing any distinct impression (Figs. 1 and 2).

An operation for extraction was then advised, but the patient preferred delay because of the existence of useful vision and the absence of pain.

Fig. 3 (Case 4).—Roentgenographic location and appearance of the foreign body in the eye.

Recently the patient presented himself with a complete secondary cataract and with a marked degree of siderosis, converting a light blue iris into a rusty brown, with brownish deposits on the lens. The roentgenogram by the same expert as before failed to show any foreign body whatever. We accordingly extracted the opaque lens so that now through the moderately clear media we can confirm the roentgenographic findings of complete absence of any foreign body, and useful vision has been secured for the injured eye.

The indications are that the piece of iron had undergone complete solution in the vitreous, and the resulting salts of iron had become deposited in the various intra-ocular tissues. The case is worthy of record as bearing on the question of the solubility of metals in the humors of the eyes and on the further question of the influence of these resulting salts on the transparency of the lens, the substance of which was not stained by the salts of iron but was completely protected by the capsule. The lenticular opacity was evidently due, not to direct injury but to nutritional changes in the uveal tract. The final result in all cases must await the action of those gradual processes of vitreous contraction and retinal detachment which may supervene even after the lapse of many months to mar the satisfaction of our best achievements.

Cases 4, 5 and 6 were extensive injuries, and they serve to illustrate the possibilities in such cases even in the presence of definite infection.

CASE 4.—Master C. C. of Greenville, Texas, aged 14 years, exploded a copper shell by striking it with an ax. A piece of the margin of the shell from which the ball and powder had been extracted was driven into the eyeball. This occurred, May 2, 1911. The wound in the lid was repaired by Dr. C. E. Cantrell, who sent the patient to Dallas for operation, which was performed, May 3, after an accurate roentgenogram had been made by Dr. J. M. Martin. The weight of the piece of copper was 3 grains, and the dimensions were 5 by 9 mm. The location was 3 mm. below the horizontal plane of the cornea, 10 mm. to the temporal side of the vertical plane of the cornea, and 8 mm. back of its center. The roentgenogram and diagram (Figs. 3 and 4) are herewith presented. The wound in the sclera began at the upper and outer portion of the limbus and extended through the ciliary region for one-eighth inch; the pupil was irregular and vision reduced to the perception of fingers at 3 feet. A new incision was made through the sclera below the external rectus over the situation of the foreign body, which was extracted with forceps, together with the contiguous portions of the vitreous, which had become opaque and slightly yellow from the inflammatory process, which was infectious in character as shown by the microscope. Both wounds were then freed from the adjacent uveal tissue, and closed with a double layer of conjunctiva secured in position by mattress sutures. An interesting feature is that the infectious process in the vitreous did not extend, evidently because the infected portions were freely removed with the foreign body embedded therein. The normal form and comfort of the eyeball have been maintained, and the patient has since graduated with honor at the Virginia Military Institute and has played his part in the military affairs of his country.

The chief lesson taught by this experience is the value of freely removing infected vitreous surrounding a retained foreign body rather than allowing it to remain within the globe. It is simply an extension of the general surgical principles so well established during the war, but which perhaps have not been so widely accepted with reference to the vitreous humor, which we have sometimes been too uncompromising in preserving.

CASE 5.—Ben McC. of Cleburne, Texas, was struck in the eye by a piece of steel, Dec. 25, 1917, which was accurately located by Dr. Bond of Fort Worth and Dr. Martin of Dallas as being 7 mm. above the horizontal plane of the cornea, 3 mm. to the temporal side of the vertical plane, and 13 mm. back of the center of the cornea (Fig. 5). The dimensions were 1.5 by 7 mm. Operation was performed, December 28. A scleral incision was made over the site of the foreign body, which was extracted with the magnet; and then the surrounding vitreous, which had become opaque and yellowish from inflammatory exudate, was also freely excised and submitted to a careful bacteriologic examination, which showed a pure culture of *Staphylococcus albus*, as also did the piece of steel and an excised piece of the injured iris. The wound was closed by double layers of conjunctiva held in position by mattress sutures, a method which I have used for many years with great satisfaction. It is conveniently and aptly designated as the double breasted coat conjunctival covering. Its advantages were fully described by Dr. Lee Mastin Francis in a paper before this

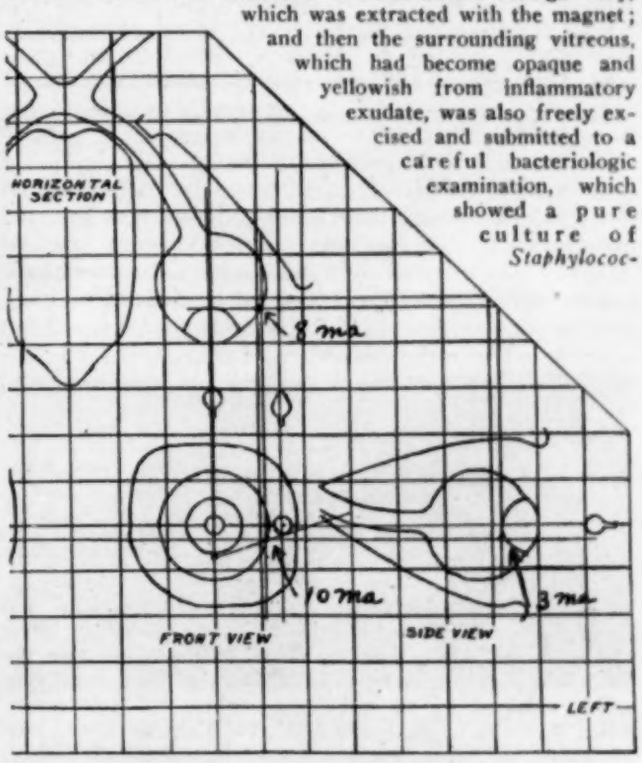

Fig. 4 (Case 4).—Diagrams showing the location of the foreign body in three planes.

section some years ago. The wound healed without any unfavorable manifestations, and presents a reasonably satisfactory appearance, as indicated by the photograph (Fig. 7).

The method employed in excising the opaque infected vitreous consisted in grasping the tenacious exudate with forceps and gently drawing it through the wound, catching successively new holds on the infected tissue with curved iris forceps, somewhat after the manner of drawing a bucket from a well with a rope, continuing the procedure as long as opaque

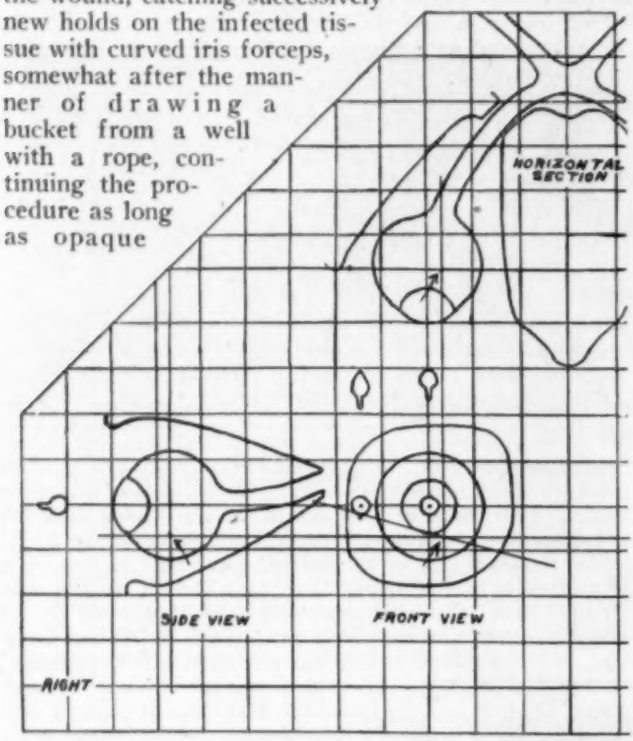

Fig. 5 (Case 5).—Diagrams showing the location of the foreign body in three planes.

vitreous presented. My feeling in the matter is that no good can result from leaving in the eye infected material, and that the small loss of vitreous involved is easily compensated for by the improved bacteriologic status of the eye in the process of healing. I will add in this connection that in all injured eyes, when I am confronted with the possibility of transferred ophthalmitis during my efforts to save a severely injured eye, I am in the habit of adopting a measure suggested by our distinguished confrère, Dr. Harold Gifford—saturating the system with salicylates before any sympathetic manifestations appear.

Case 6.—Mr. B. of Dallas County was, in conjunction with another man, arranging to blast some rock in excavating for a cistern. The discharge of giant powder occurred prematurely, killing instantly the comrade of the patient, and inflicting on the latter the injuries now to be described. When the patient was brought to me two days after the accident, the left globe had been reduced to a perfectly disorganized pulp which admitted of no rational procedure but enucleation, which was accordingly performed. The right globe was perforated in two places by lacerated wounds, and an examination revealed the presence of three pieces of rock within the eyeball, one piece being about half as large as the nail of the little finger. The eye was considerably inflamed and evidently infected, as shown by the character of the discharge. But as the fellow eye was utterly lost and the only possibility of vision depended on the eye not totally gone, I decided to make the most of a poor opportunity. So, after as thorough disinfection of the injured organ as the circumstances would permit, I made an incision into the globe to an extent greater than half of the circumference of the cornea, in order to be able to reach the scattered fragments of rock which had lacerated and had become embedded in the iris. Unfortunately, the difficulties encountered by the surgeon in dealing with fragments of rock within the globe are much greater than in the case of steel bodies, because the latter can be extracted by the aid of various forms of the electromagnet. And fragments of rock are much more difficult to handle successfully than pieces of wood, because the increased weight of the former is such that when the globe is opened they tend to make a dive for the deeper regions of the vitreous. In this case it was necessary to remove large areas of the lacerated iris in order to be sure of the fragments of rock. The extraction of the rocks and the removal of the injured iris we accomplished by the combined use of hooks and forceps. After the operation the lids were kept closed with light compresses saturated in cool boric acid solution, and at frequent intervals instillations of a mydriatic were made and lotions of mild antiseptics employed. After a few weeks the patient was discharged from St. Paul's Sanitarium with ability to read ordinary type.

In Cases 7, 8 and 9, the foreign body was allowed to remain in the eye for a considerable time, and failed to respond to any measures but the intra-ocular application of magnetic electrodes.

Case 7.—Mr. W. B. C. of Dallas was struck in the eye by a piece of steel which I present herewith, together with the roentgenograms (Fig. 8) taken in advance of the operation, which was performed eight weeks after the injury. The weight of the steel is 1/100 carat, and the location was 6 mm. below the horizontal plane of the cornea, 6 mm. to the nasal side of the vertical plane of the cornea and 9 mm. back of its center. There was a circumscribed corneal opacity surrounding the track of the steel, and vision amounted to dim perception of fingers. The iris had closed up the anterior capsular opening produced by the entrance of the steel into the lens, and had thus restricted the access of aqueous to the lens substance with consequent limitation of the opaque zone. An incision along the limbus was made and the iris drawn away from the lens with iris forceps, exposing the point of entrance of the steel. An electrode of the improved Sweet magnet was introduced into the opening thus disclosed. The current was turned on and the magnet with the attached piece of steel removed. The eye, which had continued to be irritable before the operation, now quieted down completely, and a subsequent cataract extraction should result in usefu' vision.

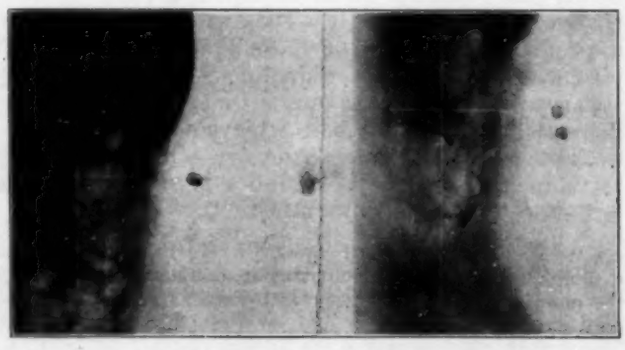

Fig. 6 (Case 5).—Roentgenographic appearance of foreign body and scar.

This illustrates the toleration of the lens for foreign bodies and the action of the iris in limiting the extent of lenticular opacity by preventing the free access of aqueous to the lens substance. The application of the giant magnet to the cornea failed to develop any response, while the direct contact with the electrode of the Sweet magnet was effective, showing that even in the case of foreign bodies located in the anterior seg-

ment of the eye, the giant magnet applied according to the method of Haab cannot always secure the best result.

CASE 8.—Mr. J. C. A. of Clarendon, Texas, was struck in the eye with a piece of steel three years previously, and the foreign body was located by a roentgenogram near the posterior pole of the eye embedded in the retina.. As the lens was cataractous, it was extracted in the usual way and immediately an iron probe was passed through the corneal wound, through the pupillary space, through the vitreous, until its point was approximately in contact with the foreign body. Then the electrode of the giant magnet was applied to the probe at its point of entrance into the cornea, the current was turned on, and the magnet and probe gently withdrawn, together with the foreign body attached to the distal extremity of the probe. The eye healed without trouble and for some months retained useful vision, after which the patient passed out of observation.

Fig. 7 (Case 5).—Appearance of patient after operation.

The history of this case shows the feasibility of utilizing the pupillary space as a doorway through which we may safely reach the vitreous when an extraction of the lens is necessary. I think this route for the introduction of magnetized probes has not been widely employed; but it offers an avenue that is worthy of our consideration.

CASE 9.—Mr. E. D. of Dallas, Texas, aged 35, was struck in the eye in 1905 by a piece of steel, and the vision was lost at once. Confrères failed to locate any foreign body, and the eye remained fairly quiet for three years, when photophobia and other manifestations of sympathetic weakness in the good eye developed, while the injured eye was cataractous and showed a marked degree of siderosis.

The piece of steel was located (by the roentgen ray) near the posterior pole, embedded in the retina. The lens was extracted and an iron probe passed through the corneal wound, through the pupillary space, and through the vitreous until it approximated the foreign body. The electrode of the giant magnet was applied to the probe at its entrance into the anterior chamber, the current was turned on and then the magnet, probe, and foreign body were gently withdrawn. The healing process was uneventful and the patient retained useful vision for several years, when the degenerative changes progressed to the point of abolition of vision in the injured eye, although the fellow eye has been free from indications of sympathetic involvement.

CASE 10.—Lieutenant S. of Love Field, an aviator, was referred to me by the post surgeon, Major Earthman, within a few hours after the receipt of an injury which was occasioned by the impact of some foreign body driven by the tremendous force of the propeller. Examination showed that a small foreign body about the size of a duck shot had penetrated the upper lid and had entered the globe in the superior segment of the ciliary zone. There was a prolapse of uveal tissue, and blood filled the anterior chamber, with immediate loss of vision. Apparently a foreign body was either within the eyeball or had passed on through into the retrobulbar region. The roentgen ray showed absolutely nothing, but this could have been explained by the hypothesis that the foreign body was not impervious to the roentgen rays. Nevertheless, as the danger of sympathetic involvement could not reasonably be apprehended within ten days, it was safe to use conservative measures, so the protruding uveal tissue was removed and the usual surgical measures employed for a few days, when the hemorrhage became absorbed and the lens was found to be clear, the fundus normal and the vitreous presented a few floating remnants of the previous hemorrhage, which subsequently became completely absorbed. The eye was free from pain or suspicious inflammatory changes, and will probably remain a safe and useful organ of vision, the degree at present being 20/30.

What evidently occurred at the time of the injury was that the foreign body which struck the eye had a sharp point, which permitted a partial penetration which was limited by the size of the foreign body and was immediately spontaneously withdrawn, thus presenting a punctured wound without the retention of a foreign body within the globe. This illustrates the necessity for the utmost conservatism in differentiating retained foreign bodies from punctured wounds presenting many circumstances and appearances that might obtain in either condition.

In connection with extensive wounds of the cornea produced by the entrance of foreign bodies, something might be said concerning the closure of these wounds after the foreign bodies have been removed.

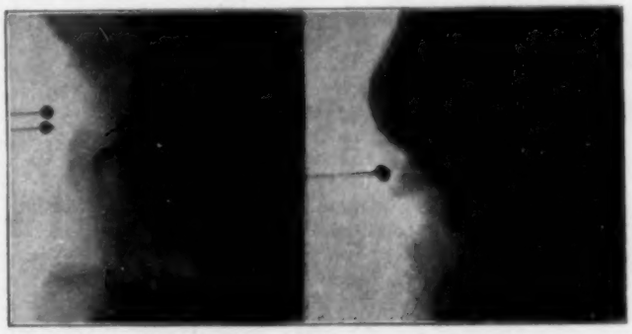

Fig. 8 (Case 7).—Roentgenographic appearance of the eye and orbit just prior to the operation for foreign body, which was performed eight weeks after the injury.

CASE 11.—The procedure can be illustrated by the case of a young woman, Miss M. N., whose eye was cut wide open by glass from an explosion in the chemical laboratory of the Southern Methodist University in Dallas. The irregular, gaping wounds extended entirely across the cornea; and as normal approximation was impossible, the problem developed of securing a closure of the wounds.

This was accomplished by providing a bridge of bulbar conjunctiva, swung like a hammock across the cornea and retaining its original attachment at either extremity. This conjunctival bridge, carrying its vascular supply was allowed to remain in contact with the wounds until the healing process was completed and then it was carefully dissected away, leaving only linear scars to mark the situation of former gaping wounds.

ABSTRACT OF DISCUSSION

Dr. William M. Sweet, Philadelphia: Dr. McReynolds has so fully covered every phase of the subject of foreign body injuries of the eyeball that there is nothing new to add. It is now generally recognized that the first consideration is to determine whether the body which caused the injury has lodged within the eyeball or orbit, and if within the eye, its position and approximate size. Many injured eyes have been lost in the past by delay in making the diagnosis of a foreign body in the globe, local measures being employed for a considerable period until the metal or other material causing the traumatism was so covered with exudate that attempts at extraction failed. I have always favored the scleral incision for the removal of steel from the vitreous chamber. As most of the particles are at or posterior to the equator of the globe, the body has a shorter distance to travel than if brought around the lens. It is only in the few instances in which the metal is of small size, and with no irregular surfaces to be caught in the anterior uveal tissues, that I have drawn the metal into the anterior chamber.

May experience in retinal detachment following extraction agrees with that of Dr. McReynolds. I have not found the separation at the site of the incision in the sclera but in other portions of the vitreous chamber. In the cases in which detachment occurs, I believe it is due to the contraction of the newly formed inflammatory lesions at the point in the retina or choroid where the parts have been injured by a fairly large body, or, in instances in which a smaller body has remained imbedded for several days or weeks, to the traumatism which has followed the drag of the magnet in loosening the metal from the exudation in which it was imbedded. With the apparent trivial character of so many of these foreign body injuries to the patient and his friends, the ultimate results as to vision are rather unsatisfactory; and yet I fail to see any possible improvement in our present methods of diagnosis or operative procedure. One third of all cases in which there has been perforation of the globe by a foreign body are lost; some from primary infection, some from inability to remove the body, and a larger number from late iridocyclitis. Where extraction has been successful, only a few secure useful vision. Our endeavors, therefore, must be in the direction of earlier diagnosis of a retained foreign body in the eyeball and its prompt removal. This will come with the recognition by the general profession of the serious nature of perforating wounds of the eyeball in workmen in industrial establishments, and earlier consultation with the specialist. It has been my practice in all perforating wounds of the eyeball, especially those of large size, to cover the opening with a conjunctival flap. When an incision is to be made in the sclera for the extraction of steel from the vitreous chamber, a cut is first made in the conjunctiva, the membrane undermined for a short distance, and the edges of the cut held apart by two threads. After extraction of the steel the edges of the cut conjunctiva are closed over the incision in the sclera. I have seen a few cases in which the roentgen rays failed to give a shadow of a foreign body that was in the eyeball. A thin foreign body may be so situated that the edge of the metal is toward the tube, and only a faint line of shadow is cast that may be lost in the shadow of the orbital bones. If the examination points to a probable foreign body in the globe not shown in the first roentgenograms, it is advisable to make additional plates, with the tube in different positions, so that a shadow is secured on the plate free from the shadow of the bones of the orbit.

Dr. R. H. T. Mann, Texarkana, Ark.-Texas: Several years ago I began some experimental work to see if the dangers from operations on the interior of the eye could not be much lessened by increasing the air pressure on the outside, thus equalizing the pressure of the interior of the globe and preventing the flow of vitreous from the eye during an operation for the removal of foreign bodies in the vitreous chamber. These experiments have so far been carried on in the thoracic chamber apparatus, at the Lenox Hill Hospital, in New York City. The first steps of the experiments have consisted in trying to ascertain whether both operator and the eye should be in the air tight chamber, or whether the operator should be in the air tight chamber and the patient on the outside of the chamber, with the air pressure exerted against the anterior segment of the eye alone. It seems from the present limited experiments which have been performed that this is along the lines which will have to be adopted, because the pressure in the eye may increase as rapidly as the pressure on the outside which prevents the equalization of the pressure. It is perfectly feasible for the operator, without any difficulty, to remain within the air tight chamber with the pressure increased to the pressure of the normal eye, which is 25 mm. of mercury. The increased blood pressure in the interior of the eye is somewhat offset by the hard coats of the eye, and this will be of considerable assistance in retaining the vitreous within the eye itself. I think that the air pressure can be exerted on the anterior segment of the eye during operations, thereby preventing the loss of vitreous and the collapse of the eye. If this can be done, it will not only simplify very much the removal of foreign bodies from the vitreous chamber, but also render easy other operations on the eye where there is danger of losing the vitreous. The reason why all the vitreous does not escape now is because the pressure becomes equal, and with the patient looking up gravity prevents it from all escaping.

Dr. John Green, St. Louis: The possibility of a localized infection of the vitreous immediately surrounding the site of the foreign body suggests one objection to the anterior route. Given an infected foreign body in the vitreous, with the point of entrance in the sclera the patient coming under observation soon after the accident, that method of extraction which, so far as possible, follows the track made by the entering foreign body, should be followed in its extraction. The adoption of any other route means the risk of infecting a previously uninfected track. It is as though we should streak an infected platinum loop along a previously unstreaked surface of the culture medium.

Dr. Edward Jackson, Denver: Many very interesting points have been brought out, and among them I wish to refer to one. The most common and dangerous failure of roentgen-ray localization of foreign bodies in the eye, which I have encountered, has been the report that the foreign body was outside of the eyeball, when it was really within it. I think that probably is due to the fact that sufficient allowance has not been made for the divergence of the rays used in localizing. The rays are always divergent. The amount of divergence depends especially on the distance it is from the eye. Most men using the diagrams which have been prepared for this purpose are not at first inclined to take that into account. Such diagrams should have printed on them some reference to it. If the diagram represents the exact size of the eyeball, and is intended to represent in millimeters the exact position, there should be a table indicating the increase of dimensions, which would be caused by using the tube at six inches, eight inches, ten inches, etc. The printing of something of that kind on the diagram will call the attention of the roentgenologist and the surgeon to the fact that the negative obtained shows the part magnified.

Dr. W. M. Sweet, Philadelphia: On the charts for plotting the position of the foreign body, allowance is made for the divergence of the roentgen rays. If the body is of large size, it is customary to localize the two ends. A slight error is possible in foreign bodies at the posterior part of the vitreous, owing to the injured eye being larger or smaller than the diagrammatic eyeball of the chart, which measures 24 mm. Accuracy of localization depends on the determination of the distance of the indicating ball of the apparatus from the center of the cornea. If the roentgenographer fails

to carefully make the measurements the localization of the foreign body will be inaccurate.

DR. ALLEN GREENWOOD, Boston: I trust the few brief remarks I will have to offer will never again be applicable. Never again do we want to go through the experiences we have been through, but if, perchance, some of you are called on to do work such as was done in the last few years in France, you will find that handling these cases in the military organization is entirely different from the civilian method in many ways. In the hurry of work in mobile and evacuation hospitals, it is difficult to get roentgen-ray work done with accuracy and speed. Therefore, in removing foreign bodies the magnet, besides the work of removal, is of great service from a diagnostic standpoint and it should be thus used. If a foreign body is demonstrated it possibly can be brought into the anterior chamber and then removed with the smaller magnet. I would call your attention to the magnet we used most in France, which weighs nearly sixty pounds, the large one of Dr. Lancester, which has practically the same pull as the giant Haab. The question of the removal of foreign bodies by the posterior route or by the anterior route, so-called, will probably never be settled as some men would prefer one and some the other. Both methods are useful but both have limitations. I extracted most of the foreign bodies I saw through the posterior route, only removing very small ones by the anterior route.

I want to add a word in regard to the use of the conjunctival flap. Some of you have seen Military Manual No. 3 in which you will find advocated the use of the conjunctival flap and the hammock flap of Dr. N. C. Reynolds, which have been used for covering the central wounds of the eyes and with excellent results.

DR. LEE M. FRANCIS, Buffalo: I want to emphasize what Dr. Sweet brought out, that is, taking pictures of the suspected foreign body from more than one direction. In one case in Base Hospital No. 115, in which we selected an anterior route as the roentgenogram gave us the idea that it was a small one, instead of having a round body, we had a spicule of steel four millimeters in length. We should have used the posterior route and we would not have lost it. We must be sure of the third dimension of the foreign body.

DR. GEORGE S. DERBY, Boston: During eight months of the time I was in France I had the opportunity of working in the principal eye base at Boulogne. At least 500 foreign bodies in the eyes were treated. I had an opportunity of talking with a number of French surgeons who were treating this class of cases. The British are strongly in favor of the extraction by the anterior route, and that was the principal mode of operation in France by them. The French, however, used the anterior route in some cases and the posterior route in others. You may have a foreign body when there is no sign of a perforation, or none is visible, at least. Do not overlook that. It must not be thought because you have no sign of entrance that it is not there. The roentgen ray is a fine test, but the final test is the magnet. The giant magnet should be used in all doubtful cases. I believe small foreign bodies measuring less than one millimeter should be extracted by the giant magnet by the anterior route. The British used it for larger pieces. If you cannot get a small body in one sitting, try it again, either the same day or the following day. I have seen a number of cases where it was not brought forward until three or more trials, and then it was successfully extracted. Sometimes we are in doubt as to whether the foreign body is in the eye or has passed through the eyeball. Where the perforation is complete one gets an evident degree of proptosis of the eyeball, and this I believe is an excellent diagnostic sign.

DR. E. E. HOLT, Portland, Me.: When I presented my first series of cases of removal of foreign bodies from the interior of the eye to the American Ophthalmologic Society, more than thirty years ago, some of the members were sure that disastrous results would follow this practice. This series of cases, as well as the second series of cases presented to this society, and all of my subsequent cases, were followed as carefully as it was possible to follow their subsequent history without finding that this practice did lead to disastrous results. The diagnosis of all my cases in the first two series of cases presented to the American Ophthalmologic Society was made from the circumstance of the accident, the size and location of the wound in the eye, electromagnet and the ophthalmoscope. When the foreign body could not be detected by the ophthalmoscope there was no more difficulty experienced in removing the metal than when it could be readily seen. When the wound was small or was located in the cornea, the metal was removed by making a flap of the conjunctiva and an incision into the eyeball in the inferior outer quadrant, using a medium sized hand magnet for its extraction. My experience teaches me that time is an element of the greatest importance in the successful removal of foreign bodies from the interior of the eye, there being much less reaction when it is removed on the same day of the accident than at any subsequent time. This is of so much importance that I should prefer to operate without a roentgen-ray examination if I could not get one right away after the case came under my care provided I was quite sure the foreign body was in the eye. As the essayist says "watchful waiting" will not do, something must be done to remove the foreign body from the eye if we are to treat these cases successfully. When my first series of cases was presented to the American Ophthalmological Society, some of the members expressed surprise that I should have so many more cases than the rest of the members. The explanation made at the time was that I began the practice of removing the foreign body from the interior of the eye, thus saving the eye with sight instead of removing the eye, as had been expected by all concerned, and insisted that it should be done at the earliest moment possible after the accident. This practice becoming generally known among those liable to these accidents, they lost no time in having it carried out at once. The reason why the other members of the society had so few cases at that time came from the fact that it was taught that when an eye was injured by metal penetrating it, in what had been designated the "dangerous zone," and the metal remained in the eye, the eye should be removed. This was done by the general surgeon. Thus the specialist did not see many of these cases. When, however, it became more generally known that a foreign body could be removed, thus saving the eye with sight, the specialist was consulted and he began to have cases commensurate with accidents of this nature.

DR. OLIVER TYDINGS, Chicago: For some years we had the first and only giant magnet west of the Allegheny Mountains, and in that time we have had a great number of injuries. We came to look on the giant magnet as being an infallible diagnostic instrument; but our delusion was dispelled, and not with a case tried once or twice, but frequently; not by one man, but by three of the most competent men in the profession, until we discovered that the roentgen ray disclosed what a giant magnet would not. And we are able to locate the pieces of steel with the roentgen ray that we could not with the giant magnet. I do not know why, but there are times when iron or steel is diamagnetized, and you will have that experience. With regard to the localization, it is very important. I can recall a case localized behind the globe which I did not disturb, and it got well with good visual acuity; but that case is a sad commentary on the neglect of treatment afterwards. In this case a foreign body had passed through the globe, injuring the lens, which was absorbed. Vision after several months with correction was 20/20. When next seen a quiet iritis had distorted the pupil, which interfered greatly with vision and 22/100 was the best that could be obtained until after the long use of scopolamin the vision was again brought to practically normal. On account of its position, no attempt was made to find out what the foreign body was. I think it was a shot, and is still posterior to the globe and doing no damage.

DR. JOHN O. MCREYNOLDS, Dallas, Texas: An important question arises as to the magnetic quality of various alloys of iron, and it is well known that a high percentage of manganese may render the iron nonmagnetic and hence in such cases the magnet would be of no value either in diagnosis or in operation. One of the most difficult problems in connection with these cases is presented after the foreign body

has been successfully removed. It is this, how long are we justified in persisting in our efforts to save a seriously wounded eye? My own conviction is that if the eye is going to do any good this fact will be indicated within a period of three weeks and further delay may unnecessarily imperil the uninjured eye.

THE MAXIMUM PHYSIOLOGIC LYMPHATIC REACTION IN DEEPLY PENETRATING WOUNDS OF THE EYEBALL

E. L. JONES, M.D.
CUMBERLAND, MD.

While the deep tissues of the eyeball are among the body's structures most highly susceptible to infection from penetrating wounds, they have profited very little by the great principles of wound sterilization as developed by modern antisepsis, and eyes so injured are daily being removed, as compound fractures of extremities in the old days were followed by amputations to save the patient from death from sepsis. This is true because the delicate structures of the eye cannot stand any really efficient germicide. Nor can such be given free access to the seat of infection, nor can the parts be laid open for free drainage, nor can damaged tissues be cut away as in recent war surgery.

How, then, may this situation be altered for the better? The answer is to be found in exciting an abundant flow of lymph, which is nature's antiseptic and tissue restorer, and goes to every part of the eye that a germ can reach. There may be other ways of producing this reaction, but the one that I have employed for a number of years is a massive subconjunctival injection of mercuric cyanid in conjunction with certain other drugs, by which the subconjunctival spaces on the ball, and the loose tissues of the lids are speedily distended to their utmost with lymph, preventing in most instances the lids' being opened for several days, and often causing swelling even on the face. How much lymph circulates through the tissues is not known; but the amount which transudes out can easily be told by squeezing out a pad which has been on an eye for twenty-four hours, after having been wet with about 2 ounces of water. If to this be added nitric acid, it will curdle so that it is as dense as buttermilk.

In my experience, covering fifteen years, all manner of extensive and deep penetrating wounds, many attended by nonrecoverable foreign bodies, have healed with no signs whatever of infection, or of degeneration or damage aside from the initial injury. In a paper on "Foreign Bodies Within the Eyeball," read before the Section on Ophthalmology at the recent session of the American Medical Association, Dr. McReynolds[1] states that the victory has not been won when the foreign body has been brilliantly extracted, and anxious days of waiting in fear of sepsis follow. He speaks of the slow degenerative changes which may follow after months or years, including detachment of the retina.

It was said by Dr. Herman Knapp, in the early days of giant magnet extraction, that these cases made a grand impression at first, but that many patients ultimately became blind. Mr. Gustavus Hartridge[2] says, in discussing this subject before the Ophthalmological Society of the United Kingdom in 1915:

> The patient appears to make an excellent recovery, and leaves the hospital with perhaps almost normal vision; months later the vision of the eye gradually fails, and on examination, a large detachment is found. I have seen dozens of such cases, and would venture to state that the majority of cases in which a foreign body is removed from the back of the eye through the vitreous end this way.

Another prolific source of destruction, in my belief, is the organization and shrinking of profuse vitreous hemorrhage. It is my contention that all of these patients should be given the massive cyanid injection which sterilizes the eye, furnishes lymph to repair damaged tissue, and promotes absorption of blood effused into the vitreous. Furthermore, the swelling of the conjunctiva closes and covers the wounds, and protects them from conjunctival secretions, serving the purpose of the double flap suture advocated by Francis, and the sliding flap operation recommended in the official Military War Manual No. 3 on ophthalmic surgery.

A number of oculists who have used the injection in cases of intractable diseases have found that it serves them well; let us hope it will be given the same trial in cases of deeply penetrating wounds, and the wounds attendant on magnet operations.

Dr. McWhinnie[3] has detailed a series of phenomenal results from these injections, among them an extensive scleral wound made by a dirty fish knife, presenting a condition for which textbooks advise immediate enucleation, in which the eyeball and vision were saved by the injection. I have in sundry publications pleaded for the single massive injection instead of frequent small or salt water injections, and have had my beliefs confirmed by men who have used the plan advocated. The detractors are found among those who use the small or mild injection, and fail to excite the maximum physiologic lymphatic reaction.

1. McReynolds, J. O.: Foreign Bodies Within the Eyeball, J. A. M. A., this issue, p. 818.
2. Hartridge, Gustavus: Tr. Ophth. Soc. U. K., 1915, Vol. XXXV, p. 125.

A SECOND ATTACK OF SYPHILIS TWO YEARS AFTER THE FIRST

CURABILITY OF THE DISEASE *

JAY FRANK SCHAMBERG, M.D.
PHILADELPHIA

In view of the fact that the Wassermann reaction is not infrequently negative in the presence of indubitable evidence of active syphilis, in the minds of many, this query has arisen: "How can we ever be sure of the complete extinction of the disease?" Indeed, many physicians have expressed doubts as to its curability. It is important for the profession to have placed before it as much convincing evidence pointing to the radical extermination of the syphilitic infection as possible, in order that there may be developed a crystallized scientific judgment on this important question. There is every reason to believe that many patients treated intensively in the early primary stage are cured, for they commonly remained free of symptoms for years and repeatedly have negative blood tests. But these data do not of themselves constitute evidence of cure.

3. McWhinnie, New York M. J. **107**: 343 (Feb. 23) 1918.
* Read before the Section on Dermatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

In the subjoined case, in which treatment was given after the secondary symptoms had developed, a definite cure took place:

REPORT OF CASE

A man, aged 23, contracted syphilis in June; 1917. During a drunken orgie, he and two companions cohabited with the same woman, and all three became infected. (The other two victims were treated by us for syphilis.) The patient, with a suspected chancre of the meatus, was first seen, June 21, in the hospital of the University of Pennsylvania, by Dr. Hollingsworth Siter. July 2, a macular eruption appeared on the body. An intravenous injection of neo-arsphenamin was given, and also some mercury by mouth. August 14, the patient presented himself at the University Hospital with headaches, inequality of the pupils and exaggerated patellar reflexes. The Wassermann reaction was positive. A second dose of neo-arsphenamin was administered.

PROTOCOL OF PATIENT WITH TWO ATTACKS OF SYPHILIS WITHIN TWO YEARS

6-21-17 Suspected chancre of meatus.
7- 2-17 Macular eruption on body. Ulceration and induration about meatus.
7- 2-17 Injections of neo-arsphenamin; also mercury by mouth.
8-14-17 Headaches. Inequality of pupils. Exaggerated patellar reflexes. Enlarged cervical glands. Injection of neo-arsphenamin.
8-17-17 Wassermann positive.
9- 9-17 Came under treatment at Polyclinic Hospital. Wassermann tests with three different antigens, ++++, +, and ++++.
9-22-17 Arsenobenzol brand of arsphenamin 0.6 gm.
9-25-17 Arsenobenzol brand of arsphenamin 0.6 gm.; W. R., —, —, —.
9-29-17 Arsenobenzol brand of arsphenamin 0.6 gm.; W. R., cholesterinized antigen, —; syphilitic liver, +; acetone insoluble lipoids, ±.
10- 2-17 Arsenobenzol brand of arsphenamin 0.6 gm.; W. R., —, —, —.
10-12-17 Arsenobenzol brand of arsphenamin 0.6 gm.; W. R., —, —, —.
10-19-17 Arsenobenzol brand of arsphenamin 0.6 gm.; W. R., —, —, —; Hecht-Gradwohl, weakly +.
11- 8-17 Arsenobenzol brand of arsphenamin 0.6 gm.; W. R., —, —, —.
11-15-17 Arsenobenzol brand of arsphenamin 0.6 gm.; W. R., cholesterinized antigen, +; —, —.
12-13-17 Arsenobenzol brand of arsphenamin 0.6 gm.; W. R., cholesterinized antigen, +; —, —.
Nine monthly Wassermanns in Army, negative.
4- 4-19 Second attack of syphilis—chancre, roseola, followed by varioloform syphilid.
4-26-19 Arsenobenzol brand of arsphenamin 0.4 gm.; W. R., ++++, ++++, ++++.
4-29-19 Neo-arsphenamin, 0.75 gm.; W. R., ++++, ++++, ++++.
5- 9-19 Neo-arsphenamin, 0.6 gm.; W. R., ++++, ++++, ++++.
5-12-19 Arsenobenzol brand of arsphenamin, 0.4 gm.; W. R., ++++, ++++, ++++.
5-17-19 Neo-arsphenamin, 0.9 gm.; W. R., ++++, ++++, ++++.
5-20-19 Arsenobenzol brand of arsphenamin, 0.4 gm.; W. R., ++++, ++++, ++++.
5-26-19 Arsenobenzol brand of arsphenamin, 0.4 gm.

The patient came under my care Sept. 9, 1917. Three days later, the Wassermann reaction with cholesterinized antigen was ++++; with alcoholic extract of syphilitic liver, +, and with acetone insoluble lipoids ++++. Between Sept. 22 and Nov. 15, 1917, the patient received eight intravenous injections of the arsenobenzol brand of arsphenamin, the Wassermann reaction becoming negative after the first injection, but relapsing to a weak positive on several subsequent occasions. He was drafted into the Army, and while at two southern camps, because of a deep scar on the glans penis, had a blood test taken monthly for nine months. All of these tests proved negative.

After his discharge from the Army, he again lived with a woman with whom he had been living before he entered the Army. April 4, 1919, he appeared at my clinic at the Polyclinic Hospital with a generalized, pinkish-red roseola. This developed within a fortnight into an extensive varioloform syphilid, covering the face, trunk and extremities (Fig. 1). There was a large chancre on the foreskin opposite the corona (Fig. 2), a site different from that of the first chancre. Six Wassermann tests made between April 26 and May 26 were strongly positive (++++) despite seven administrations of arsphenamin and neo-arsphenamin. During this period, the chancre and eruption promptly disappeared under the treatment.

To summarize, the patient contracted syphilis in June, 1917; after treatment with the arsenobenzol brand of arsphenamin he had repeated negative Wassermann reactions until the early part of 1919, when he contracted another chancre, followed by a widespread and severe papulopustular syphilid, and had a strongly positive Wassermann reaction. It is obvious that this patient had been cured.

COMMENT

This case is all the more remarkable in view of the fact that the patient was irregular in his attendance at the University Hospital, and that, through neglect, he developed what were, in all likelihood, evidences of an early meningeal involvement, characterized by headaches, inequality of the pupils, and exaggerated patellar reflexes. It is interesting to observe that not a vestige of immunity against the second attack remained. Indeed, the second attack was more severe than the first, and the Wassermann reaction bids fair to be more resistant to treatment. In this case, the evidence of a second attack is, in my opinion, indisputable. I believe that the deduction that the patient was cured of his first attack is warranted by all of the facts.

Cases of this character are most instructive in the light they throw on the curability of syphilis. The excellent pathologic researches of Warthin at Ann Arbor were persuading many physicians to believe in the dictum enunciated many years ago (under a different therapeutic regimen), "Once a syphilitic, always a syphilitic." I believe that we are in a position at the present day, with more powerful and scientific drugs at our command, to state that syphilis is a curable disease. The criteria of cure are difficult to establish, because the evidential value of negative Wassermann tests is not conclusive. In view, however, of cures such as the one above reported, we may perhaps place more faith in repeatedly negative serologic tests and the absence of symptoms as indications of probable cure.

1922 Spruce Street.

ABSTRACT OF DISCUSSION

DR. JOSEPH ZEISLER, Chicago: Dr. Schamberg brings up the question of inunctions as against the injection of insoluble salts; he presents the subject of reinfection and finally gives us his routine of arsphenamin treatment, a matter in which we are all interested because we would like, at last, to get to something more than experiments. Reinfection of syphilis was observed long before we knew of arsphenamin, and the observation of Dr. Schamberg merely adds another instance to these interesting cases. I do not believe that Dr. Schamberg will be able to convince a majority of his hearers that injections of insoluble salts are not safe as compared to inunctions. That is a subject that has been rehashed often, and if Dr. Gottheil were here he would be a more able advocate than I. I think every one will go away still adhering to his previous methods. I highly value the inunction methods, but consider the injection method as excellent and believe the danger of injecting insoluble salts at the present time may be practically ignored. We are much interested to learn of Dr. Schamberg's combined treatment. It is a fine point, this injection on alternate days and the inunctions on off days. I have personally for sometime, at least in fresh cases, practiced the intensive arsphenamin treatment on three successive days, as advocated by Dr. Pollitzer, following it with inunctions, or injections; but these are merely technical details.

DR. WILLIAM H. GUY, Pittsburgh: We all understand that in the treatment of syphilis we are dealing with a chronic infection by *Spirochaeta pallida*, and that a cure depends on our ability to destroy every spirochete with which the individual is infected. We also know that we have two drugs, arsphenamin and mercury, which are effective spiro-

cheticides, arsphenamin being the better of the two. As Dr. Schamberg has pointed out, the result he is able to obtain is dependent not only on the frequency of dosage but on the size of the dose, the aim being to secure as high a concentration of the drug in the blood stream as possible in order

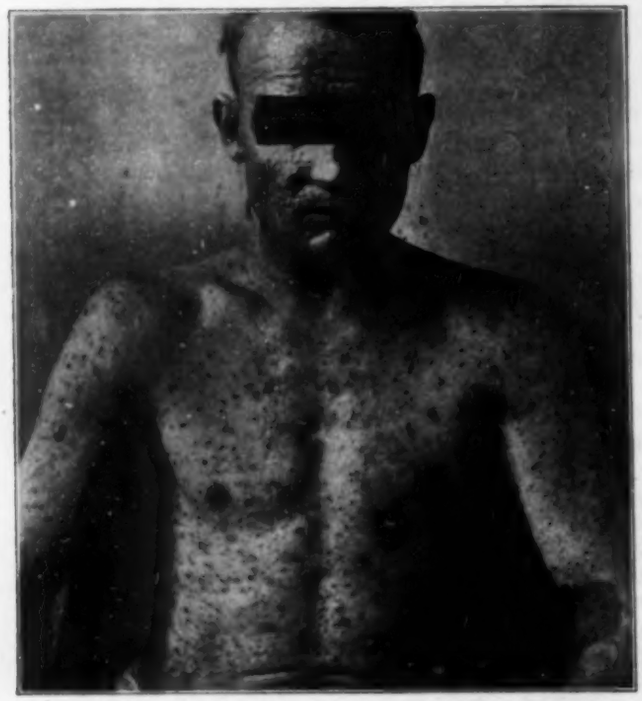

Fig. 1.—Varioloform syphilid: eruption of second attack.

to destroy as many spirochetes as possible in the short length of time arsphenamin remains in the blood stream. I would like to ask Dr. Schamberg if he does not think that results would be better if larger doses were given. We know that Ehrlich failed in his attempted "therapia magna sterilisans" because of the rapid elimination of the drug. It has been shown by Swift and Ellis that there is but little spirochetal action on the part of the blood serum six hours after administration of a full therapeutic dose of arsphenamin. Inasmuch as the destruction is immediate and depends on the concentration in the blood stream, I think that the best results would be obtained by using as great an amount in the blood stream as could be tolerated. I have used the plan of Dr. Pollitzer in which arsphenamin is given on each of three successive days at the rate of 1 gm. to each 30 pounds of body weight in a series of fifty cases without any bad results. Reiger of Indiana prefers neo-arsphenamin on account of lower toxicity and aims to obtain a sustained saturation of the blood stream by the drug. He gives a 9 dg. dose at one hour intervals. It is new and has not been tried extensively, but is worthy of consideration. He claims better results than by anything else. Regarding mercurials, every one is familiar with the objections to inunctions. The fact that we are able to give patients a large amount of mercury intramuscularly and keep them saturated with the drug without bad results is too definite to be disproven. In my series of 30,000 intramuscular injections I have made a note of but a single serious reaction. In the large number given in the army it has been infrequent that any trouble has developed, and if the patient is carefully examined before the injection, regarding particularly the condition of his elimination apparatus, and then following his injection his reactive phenomena are noted and dosage estimated accordingly, the injection method may be pursued, I believe to better advantage than the inunction.

Dr. John E. Lane, New Haven, Conn.: I think we all agree with Dr. Schamberg that the proper method of treating syphilis, and especially early syphilis, is to give the patient mercury and arsphenamin at the same time and to give as much as is consistent with safety. We all realize the objections that can be raised against the intramuscular injections of the insoluble salts of mercury and against inunctions. I hope that Dr. Schamberg will at some future time make some studies of the soluble salts of mercury used intravenously. Some of the French physicians have for a long time used the cyanid, but I know of no studies as to its relative effect on the Wassermann reaction. I have frequently used it with no injury to the veins and no other untoward results, though it is said to cause duodenitis occasionally and rarely hemorrhagic duodenitis in susceptible patients. A thorough study of the effect of this method of treatment would be of interest.

Dr. Harry G. Irvine, Minneapolis: The principal object of attempting to treat people for syphilis is to arrive at a cure of their syphilis. It seems a lamentable thing that during the past eight or nine years during which we have had arsphenamin, most of the time has been spent in attempting to arrive at some standard method for giving arsphenamin, and each year has brought forth some new combination of arsphenamin and mercury, whether it should be given with, or after, or before, or what not, and a great many papers have been written to show that such and such a treatment in such and such a time brings forth a negative Wassermann. I think we have devoted altogether too much effort to this sort of thing and not a sufficient amount of effort to following cases treated with a certain technic, a number of years ago, and bringing out to the profession what has really been accomplished in the "long distance" cure of these cases. I do not believe that anybody is prepared to say yet that a negative Wassermann extending over a year or year and one half means a cure of syphilis. We may find that patients who remain serologically well for a period of years may still bring forth paresis and tabes but sufficient time has elapsed so that some figures could be forthcoming if the men would devote their time to taking up these old cases and showing the results of treatment from every standpoint, rather than producing a negative Wassermann.

Dr. Henry H. Hazen, Washington, D. C.: For the past two years I have been using arsphenamin in much the same way as Dr. Schamberg has reported and now have seventy-five cases. In two cases when the interval was reduced to two days, a very severe urticaria developed after each injection. We then proceeded with the injections by the method Stokes brought out—the use of atropin preceeding injections. At three days intervals the results were very good but in two cases very bad urticaria developed in the two days' interval.

Fig. 2.—Eruption on thigh; scar of old chancre on glans; second chancre on foreskin over corona.

Dr. Jay Frank Schamberg, Philadelphia: I trust that Dr. Zeisler has not misunderstood me in what I stated concerning the use of insoluble preparations of mercury. In using arsphenamin it is important that the drug should be eliminated properly through the kidneys. Whenever an injection is given, a certain amount of the drug is deposited in the liver and in certain other organs. If the elimination through the kidneys is interfered with by either a preexisting renal insufficiency or by some damage to the kidneys produced by large doses of mercury, some of the arsphenamin is retained in the system. Arsenic may split off or oxidize and symptoms of arsenical poisoning are induced. When arsenic and mercury are given conjointly, the latter by intramuscular injection, the dose must be small enough to be safe. Under other circumstances one may have more latitude in the amount of mercury injected. Whenever intramuscular

injections of mercury are given, there is an accumulation of the drug from week to week. Dr. Zeisler is correct in stating that cases of second attacks of syphilis have been reported in the literature. I am not familiar with any cases in which such a long chronologic record has been available of the Wassermann test during the first attack, the interim, and a second attack. We realize that there is nothing new in the method of treatment which we have suggested. Physicians are groping for a technic which will secure the best results. Each syphilologist today treats syphilis according to his own experience; one man uses an extremely intensive treatment with successive daily injections in full dosage; another uses weekly injections, still a third combines mercury and arsphenamin, etc. We submit the method which we have described for what it is worth and for the trial of others. It will of course be necessary for us to study serologically the cases in which negative Wassermanns have been induced, for as long a period as it is possible to keep them under observation. The advantage of the method in question is that we use the two important remedies in syphilis, but use each in smaller dose than when it is used separately, and at the same time we increase the frequency of the intravenous treatment. By shooting with two arrows, we are more apt to kill the spirochete than by aiming with merely one. We have found it possible to give three weekly injections of arsphenamin in 0.3 gm. doses, with inunctions on alternate days, for several weeks, without materially disturbing the patient's well being or producing any damage to his organs. With respect to the use of soluble preparations of mercury intravenously, we have had quite a little experience. Even when the mercurial salts are used in 50 c.c. of water it has been our experience that the veins became so sclerosed that it renders them unfit for subsequent arsphenamin injections. We have used bichlorid, succinimid, the cyanid and other salts, but with the same effect. Syphilis is probably the greatest medical problem that the world has to deal with at the present time. We are persuaded that it is a curable disease, and that is an important consideration both for patients and for physicians. The matter to be determined is the best and safest method of bringing about this cure.

STRICTURE OF THE RECTUM*

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Stricture of the rectum, excluding neoplastic stenosis, is not a disease entity but is the result of a congenital malformation, or of an infection, inflammation, irritation or trauma (either mechanical or surgical). In form, strictures are annular, tubular or valvular.

ETIOLOGY

Broadly speaking, all strictures are congenital, traumatic or inflammatory.

Congenital Strictures.—These occur at the junction of the anus and rectum, and are due to imperfect or incomplete absorption of the anal membrane. As a rule, they are recognized early, and then methodical dilatation usually effects a cure. A partial membrane may persist, requiring surgical removal, or ulceration may occur above it, causing a true fibrous stricture.

Assigned Causes of Traumatic Stricture.—These are pressure of the fetal head in prolonged labor, foreign bodies (enteroliths), unskilled instrumentation and operations for hemorrhoids, fistula and resection.

I have seen no instances in which pressure of the fetal head has caused a stricture, though I have operated successfully in four cases of rectovaginal fistula following prolonged labor; but no stricture was present. Foreign bodies perforate the mucosa, causing abscess, and enteroliths may be the cause of extensive ulceration; but stricture has not followed in the cases I have seen, though, of course, it is possible. In one of my cases, stricture was due to clumsy instrumentation.

Stricture should never follow a properly performed hemorrhoidectomy. In the ligature or clamp and cautery operations, the tumors are removed in the axis of the bowel, leaving a strip of mucosa between the adjacent hemorrhoids. To insure a canal of normal caliber and to hasten the absorption of exudate, digital dilatation is begun on the fifth day and repeated twice weekly for a month till healing is complete.

Stricture may follow a Whitehead operation, especially if union is not primary. Other equally unfortunate sequelae caused me to abandon the Whitehead operation many years ago, and I believe that it has no place in the surgery of a condition that can always be cured by a safer and simpler operation. Incontinence rather than stricture is to be feared after operation for fistula. Certain neglected cases of blind external and blind internal fistula may, however, form stenoses. In the latter, the only opening is between the anal sphincters. Tonicity of the sphincters impedes drainage and infiltration, and connective tissue formations extend circularly around the intestine, forming a stricture at the level of the internal sphincter, as occurred in two of the cases reported. Resection of the rectum and end-to-end suture are usually followed by some degree of stenosis at the line of union. This is a valid argument against resection and in favor of perineal extirpation whenever anatomically possible.

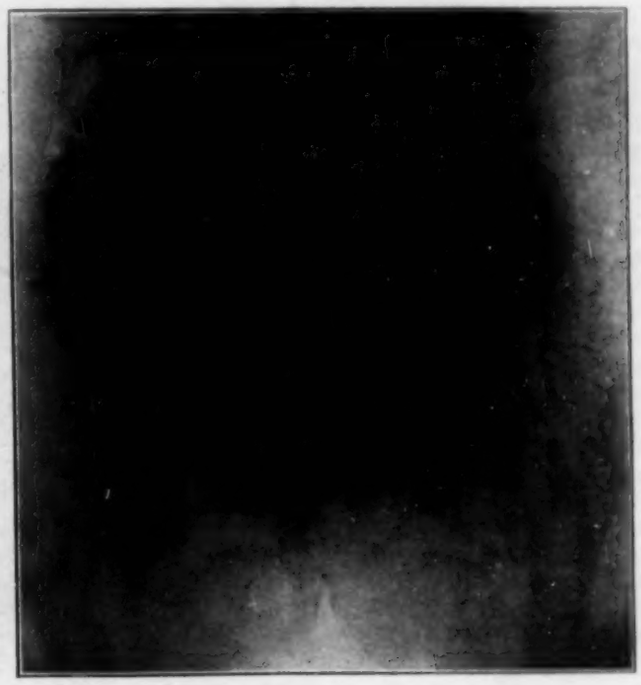


Fig. 1.—Rectum almost obliterated by syphilitic stricture.

Inflammatory Strictures.—These comprise by far the largest group, and they are of the greatest clinical importance. The infection may be simple or specific. So-called simple infections include amebic and bacillary dysentery; gonorrhea, and infection by colon bacilli, streptococci and staphylococci, of various strains, leading to acute and chronic inflammation. So,

* Read before the Section on Gastro-Enterology and Proctology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

far from being simple, these infections are still quite obscure and complex. The possibility of a simple infection causing a stricture is debatable. Unless the submucosa is extensively involved, clinically a stricture seldom, if ever, occurs. In four cases of bacillary dysentery, more than 100 cases of amebic dysentery, six cases of gonorrhea of the rectum, and a large number of cases of chronic ulcerations of mixed types of infection, many of the latter involving the entire colon and rectum and personally observed for several years, no patient has developed stricture. These limited observations accord with the more complete statistics of Woodward,[1] who states that no cases of stricture following dysenteric ulceration were reported during the war, or have been since. Among the United States troops there were 287,522 cases of dysentery, 28,451 being of the chronic form. Deaths numbered 9,431, of which 3,855 occurred in chronic cases.

Specific Infections.—The specific infections are tuberculosis and syphilis.

Tuberculosis: It is generally conceded that tuberculosis of the intestine in adults is clinically always secondary to a pulmonary lesion, either active or quiescent. Tuberculosis tends to cause stricture of the small intestine and cecum rather than of the terminal colon. The comparatively frequent occurrence of intestinal tuberculosis without stricture formation is noteworthy. Just why this should be so is not clear, but seems to depend on two factors: (*a*) the way the tissues react to the tuberculous infection, and (*b*) the character and amount of secondary infection present. If the natural resistance of the host is weak, secondary infection predominates, and the inflammation is likely to be destructive. On the contrary, if the host possesses strong natural resistance, productive inflammation may occur, with the formation of cicatricial tissue and a stenosis.

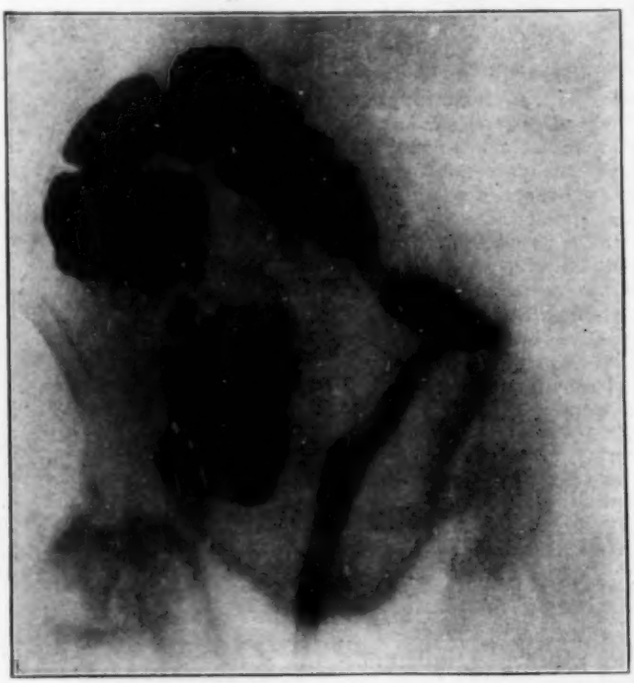


Fig. 2.—Bougie inserted through rectal stricture. Second stricture in transverse colon. Confirmed by operation.

Syphilis: This, in the tertiary stage, is rightly agreed to be the commonest infection causing stricture. It was the cause of 80 per cent. in my series of inflammatory and perirectal cases.

Gummas and obliterating endarteritis and, according to Rieder, a proliferation of the intima of the rectal veins even to their obliteration, are responsible for the ulcer. If the ulcer is not healed, there is a rapid production of connective tissue, and the foundation of a stricture is laid. The reason syphilitic strictures occur more often in women than in men (sixteen females as compared to eight males in my cases) is explained by Quénu and Hartmann on anatomic grounds. The lower group of rectal veins anastomose directly with branches of the external pudendal, and the latter originate in the posterior commissure of the vulva, the chief seat of syphilitic infection.

1. Woodward, J. J.: Medical and Surgical History of the War of the Rebellion.

PATHOLOGY

Whatever the nature of the infection, the steps in the formation of inflammatory stricture seem to be much the same, namely:

1. Infection and inflammatory process.
2. Ulceration of the mucosa.
3. Round cell infiltration and production of connective tissue, which tends to encircle the bowel.
4. Persistent contraction of this new-formed fibrous tissue.
5. Compression and atrophy of the muscle.

In a word, the formation of inflammatory stricture depends on an extensive production of connective tissue which persistently contracts.

The pathology explains the marked tendency to ulceration below syphilitic stricture. By inflammation and compression of the vessels, the arterial blood supply is limited, while the return flow is obstructed; so the natural tendency of the ulcers to heal is weakened, and their response to local and constitutional measures is impaired.

OTHER STRICTURES

Spasmodic or Phantom Strictures.—Most authorities deny the occurrence of spasmodic or phantom strictures, while a few others have reported isolated instances. They are alleged to occur at the site of attachment of the levator muscles to the rectum and at the rectosigmoidal juncture. Failure to pass the sigmoidoscope into the sigmoid is, in my experience, the consequence of (*a*) an anatomic condition, the acuteness of the angle at the rectosigmoidal juncture; (*b*) a pathologic condition, as represented by constricting peritoneal bands and adhesions, and (*c*) is rarely attributable to spasm, the spasm being temporary. No case of cicatricial stricture that I have seen was due to muscular spasm.

Valvular Stricture.—This is a special form of the inflammatory class. The valves of Houston, nonobstructive, resilient structures normally present in the rectum, are a frequent site of inflammation and ulceration, with consequent infiltration and contraction, and thus occasionally they become the site of a stricture.

Perirectal Strictures.—These may be due to inflammation in adjacent organs, or they may follow an operation on them.

DIAGNOSIS

A history of progressive constipation and futile straining at stool, or frequent fetid passages, suggests a local examination, by which a stenosis is easily recognized. It is necessary, however, not only to discover

the stricture but also to determine its nature, size, form and length, and the degree of infiltration and extent of ulceration above and below it. Most strictures are within the palpable area—the lower 4 inches of the rectum—forty-seven of my fifty cases being within 10 cm.

Congenital and traumatic (including operative) strictures present few difficulties in diagnosis. They are usually annular, and ulceration is limited or absent. Inflammatory strictures, however, must be differentiated from carcinoma. Carcinoma usually begins abruptly and has a sulcus below it. The growth itself is ulcerated and characteristically feels irregular, hard and nodular. The approach to an inflammatory stenosis is generally a gradual, cone-like, firm contraction. The mucosa below, when ulcerated, feels granular.

After the digital examination, I employ the graduated proctoscope of my model, one-half inch in diameter and 10 inches long. Through this, the examiner can note the ulceration below, discover strictures beyond the reach of the finger, pass the tube through the lumen in nearly all cases, and so determine their length and see the extent of any ulceration above. By using a tube of larger caliber, a specimen forceps, which I have devised for the purpose, can be introduced and the tissue secured for histologic examination when malignancy or tuberculosis is suspected. Scrapings may also be taken from the ulcerated surface for examination for tubercle bacilli.

Finally, roentgenograms are made twenty-four hours after a bismuth meal and also after a barium clysma. These (*a*) outline the stricture (Fig. 1); (*b*) demonstrate others at a higher level, a rare occurrence but one to be anticipated (Fig. 2), and (*c*) show the length of sigmoid available in case of operation.

A Wassermann test of the blood should be taken in every case of stricture. The reaction is positive in most cases of syphilitic stricture, and in my series occurred in 86 per cent. of the cases. The tuberculin reaction is so often positive in adults that little reliance can be placed on it for diagnosis.

Fig. 3.—Stricture of rectum removed by perineal extirpation, 1909. Patient cured.

PROGNOSIS

The prognosis varies with the nature of the stricture and the treatment instituted. For congenital and traumatic cases the prognosis is good. For inflammatory strictures, the tuberculous excepted, good management will insure a life of comparative comfort in most cases, and sometimes an operative cure can be effected. If neglected, abscess, fistulas, obstruction and toxemia lead to a fatal issue.

TREATMENT

Preventive Treatment.—Nearly all operative strictures could be prevented by proper surgical technic and suitable postoperative care, as indicated under "Etiology." It was noted under "Pathology" that an ulcer is the usual initial gross lesion in inflammatory stricture. Most ulcers in their early stages respond to local and constitutional treatment, healing with a scar limited to the mucosa or mucosa and submucosa, with no marked narrowing of the bowel lumen. Thus, the greatest measure of prevention is to heal the ulcer in the prestricture stage.

Treatment After Development.—When a stricture has developed, the treatment is constitutional, local and surgical. Patients in the majority of advanced cases are debilitated and underweight. The diet should be liberal, excluding only fermentative foods. In syphilitic cases arsphenamin should be administered till the Wassermann reaction is negative, if this can be accomplished without inducing arsenical poisoning, and should be followed by mercury given hypodermically, and the iodids. Specific treatment does not affect the cicatricial tissue already formed, but is employed as a general measure.

Dilatation has a very important place in the management. Patients in some cases can by this means be carried along very comfortably without operation, and dilatation is always employed after proctotomy to maintain the patency. Forcible dilatation by metal instruments or hydrostatic pressure is so likely to rupture the bowel that it should never be used. The safest instruments for dilatation are soft rubber Wales bougies in graduated sizes. Beginning with the largest that can be introduced comfortably, bougies are passed semiweekly in increasing sizes until a No. 7, at least, can be retained for from ten to fifteen minutes. The bowel is irrigated daily with a 2 per cent. peroxid solution.

While dilatation seldom cures a cicatricial stricture, it will enable many of its victims to lead a life of comfort and health, handicapped only by the little extra time required for the treatment.

Surgical Treatment.—This includes proctotomy, colostomy and excision.

Proctotomy is the incision of the rectum. If the incision is made above the sphincters, it is termed internal proctotomy; if through the sphincters, external proctotomy. Internal proctotomy is occasionally employed for valvular strictures, but it is preferable to divide them with a spring clip devised for the purpose. Fibrous strictures are usually near the anal strait and are accompanied by extensive ulceration

and suppuration, requiring the free drainage that external proctotomy affords. Beginning in the mucosa, 1 or 2 cm. above the stricture, the stricture, both sphincters and all intervening tissues are divided by a clean incision carried back to the tip of the coccyx. Hemorrhage is controlled by superimposed strips of gauze, and a half-inch rubber tube is passed up beyond the incision. The bowels are confined from five to eight days, and thereafter irrigated daily and bougies passed to prevent recurrence. While proctotomy does not cure an inflammatory stricture, it is a perfectly safe procedure that any surgeon can execute quickly, gives immediate relief, and is one of the most beneficent operations.

Colostomy for stricture is for either a temporary or a permanent purpose, and is made in the sigmoid or the transverse colon. If a colostomy is performed preliminary to excision, it is temporary; but if radical treatment is not contemplated, a permanent artificial anus is formed. Colostomy enables us to explore the abdominal cavity, relieves obstruction and toxemia, and prevents constant infection and irritation of the strictured area.

Indications for colostomy in the transverse colon are: (*a*) a short sigmoid, when it is proposed to perform a perineal excision later, and (*b*) demonstration by roentgenograms of another stricture at a higher level, as occurred in one of my cases (Fig. 2).

Excision, theoretically at least, is the ideal treatment for organic stricture. With our increasing experience and success in the perineal and the abdominoperineal operations for extirpation of the rectum for carcinoma, we should endeavor to apply similar methods to suitable cases of stricture. When feasible, excision should be performed either as a primary operation or secondary to colostomy, after active infection has subsided, complicating abscesses and fistulas have healed and the patient's general condition has improved. With a sigmoid of average length (16 inches), from 6 to 8 inches of bowel can be removed by the perineal operation without great difficulty in most cases, and this would cover all rectal strictures. The modified technic of Quénu and Hartmann is to be preferred.

REPORT OF CASE

In illustration is the case of Mrs. M. B., aged 31, who complained of constipation and rectal discharge for ten years before I saw her in 1909. Forcible dilatation under ether had been performed seven and four years before, and bougies passed at irregular intervals. A syphilitc stricture began just above the anal strait, admitting only a 13 F. urethral catheter. Vaginal examination indicated that the stricture was about 2 inches long. Aug. 24, 1909, I performed a perineal extirpation, removing 5 inches of the rectum (Fig. 3). The patient is now well, weighs 128 pounds, as against 104 when operated on, and has one or two formed stools daily, with perfect control.

SALIENT FEATURES

The salient features of the accompanying table are:

1. Thirty-seven of the fifty cases, including the seven in which strictures were due to fistulas, were inflammatory.

2. Twenty-four, or nearly 50 per cent. of all cases, were syphilitic.

3. Of the patients in the syphilitic cases, eight were males and sixteen females; sixteen were white and eight colored; the Wassermann reaction was positive in eighteen and negative in three clinically syphilitic, and in three cases the test was not made. The reaction was therefore positive in 86 per cent. of the cases in which the test was made.

4. In forty-seven cases, or in 94 per cent. the strictures were within 10 cm. of the anus, and therefore palpable.

5. The patients in forty cases were treated and observed for a long time. Of these, one, tuberculous, died in three years; the condition in twenty-nine was improved, that is, the patients have maintained comfortable lives, and ten, two of them syphilitic, were cured.

171 West Seventy-First Street.

FIFTY CASES OF STRICTURE OF THE RECTUM

			Sex		Race		Wassermann			Location				Form			Treatment				Result		
Classification	No. of Cases	Average Age	Male	Female	White	Colored	Positive	Negative	Not Taken	Anal Canal	Within 5 Cm.	Within 6 to 10 Cm.	Over 10 Cm.	Valvular	Annular	Tubular	Dilatation	Proctotomy or Incision	Colostomy	Excision	Died	Improved	Cured
Congenital	4	25 mos.	4	..	4	..	..	1	3	4	..	..	..	..	..	..	2 imp.	2 1 imp. 1 cured	..	..	..	3	1
Traumatic and operative	9	37 yrs.	5	4	9	..	..	4	5	8	..	..	1	..	..	..	5 3 imp. 2 cured	3 cured	..	..	..	2	5
Following fistulas	7	38 yrs.	5	2	7	..	..	6	1	4	..	2	1	1	3	..	1 imp.	3 1 imp. 2 cured	..	..	..	2	2
Inflammatory: (a) Simple infection (?)	1	58 yrs	1	..	1	..	..	1	..	..	..	1	..	1	..	..	..	1 imp.	..	..	..	1	..
(b) Tuberculous	3	43 yrs.	2	1	3	..	..	2	1	1	..	2	..	..	2	1	..	..	1 lived 3 yr.	..	1	..	..
(c) Syphilitic	24	34 yrs.	8	16	16	8	18	3	3	..	16	7	1	..	8	16	13 12 imp. 1 cured	5 imp.	2 imp.	1 cured	..	19	2
Perirectal	2	40 yrs.	..	2	2	..	..	2	..	..	1	1	..	..	2	..	1 imp.	..	..	..	..	1	..
Total	50	.....	25	25	42	8	18	10	13	17	17	13	3	2	18	17	22	14	3	1	1	29	10

ABSTRACT OF DISCUSSION

DR. JOHN L. JELKS, Memphis, Tenn.: Gonorrhea is a prevalent cause of stricture of the rectum, especially among the colored race; but gonorrheal strictures are usually lower and begin in the anal canal almost always. Tuberculosis and chancroid with ulceration are also prominent causes of

stricture. Syphilis is more often a cause of stricture than is admitted or than is proved. Many strictures of the rectum that are known to be syphilitic give a negative Wassermann. I am glad to note, however, that the doctor is having his Wassermanns made from the spinal fluid. These strictures that are syphilitic in origin primarily are not syphilitic in the end. They are mixed infection, ulcerations and fibrous infiltration. Some of them are very hard and do not constitute a syphilitic mass. Dysentery is often but not quite so often as some other diseases a cause of stricture. I have seen a number of dysentery ulcerated strictures. I am not sure, however, that there was not a secondary or associated infection. Cancer, when it appears to produce stricture, is more often higher. That is a diagnostic point well worth consideration. I have been amazed at the lack of symptoms in some cases. I have performed at least two colostomies in the last year, one of them on a negress brought into the operating room to be operated on for hemorrhoids, no diagnosis of stricture having been made. There was almost a complete obstruction and the intestine and stomach were enormously dilated, the woman in such desperate condition that it was necessary to immediately perform a colostomy. A few weeks ago another negress had a diagnosis of appendicitis made until by accident one of the physicians tried to put his finger into the rectum. Colostomy was absolutely necessary as a means of saving her life. In the treatment mercury and iodids should be avoided unless the mercury is given in the tissues, and not by the mouth. Avoid iodids. I believe they are contraindicated and should not be given. Arsphenamin in its various forms is our best means of immediate syphilitic treatment, but is worthless when late strictures have developed. Surgical drainage is the first drainage. If it is a late stricture, however, fibrous structure having been thrown out, there is absolutely no cure for those cases but enucleation of the rectum, and that should always be considered as early as is at all safe for the patient's welfare; because when external or internal proctotomy is performed, whatever one may do to drain the patient must be told: "You will not be well. Therefore, you must consider the fact that in the end you must have this rectum removed."

DR. HOLLAND H. DONALDSON, Pittsburgh: The percentage of cases of stricture of the rectum depends on several things; First, it depends on the part of the country from which the patients come. The percentage given by Dr. Yeomans would be the average percentage of nonmalignant strictures as treated in our northern cities. This is rather an unusual report of fifty nonmalignant strictures. It is a great relief to hear of some major surgery of the rectum for nonmalignant disease, because we find such a large percentage of incurable or inoperable strictures of the rectum due to cancer. The only class of strictures of the rectum the surgeon can prevent is the class of cases due to traumatism by operation. I would agree with Dr. Yeomans that the Whitehead operation as a routine operation for hemorrhoids should be discontinued, but I hardly agree with him that it should be discontinued entirely. I believe that in cases of hemorrhoids, associated with prolapse of the mucous membrane, where the other operations which deal with individual hemorrhoids are not specially applicable, it is the operation of choice. But it is not an operation for the novice. It is an operation for good surgical technic, especially with reference to prevention of traumatism of tissue, injury to the sphincter muscles and prevention of tension of sutures which is the most important of all. The tissues should be cut as you suture them. Light catgut sutures should be used and interrupted sutures rather than continued sutures. I believe a Whitehead operation in such a case, performed by good surgical technic, is the operation of choice. I would like to ask Dr. Yeomans to tell us how he performs the operation of colostomy and if he has had intussusception occur through an ordinary colostomy opening. I have had this complication occur during the last year in a patient on whom a simple colostomy was done for a hopeless cancer in which there was already metastasis in the liver. In that case the colostomy was done by making a McBurney incision, drawing the bowel up and holding it by a glass rod. In three months that patient developed an intussusception.

DR. J. RAWSON PENNINGTON, Chicago: The etiology of rectal stricture is still in doubt. Syphilis as a causative factor has run the gamut of professional opinion, vehemently advocated and just as vigorously denied. As in tuberculosis, stricture may occur in syphilitic individuals as a coincident. In the fibrous type the transformation involves all the intestinal tunics alike; consequently, the mucosa is adherent and cannot be separated. At the upper end of the stricture, however, this fibrous transformation may cease abruptly and the mucosa remain normal. In June, 1916, after a cursory clinical examination, I did a posterior proctotomy on a close fibrous stricture 2½ inches in length and probably tuberculous, in a patient 35 years old. After the incision the mucosa was loosened for about ½ inch around the upper angle of the wound. A "U" suture of heavy braided silk was passed through the proximal angle and out through the distal angle and tied, thus approximating the upper and lower angles. Similar sutures were passed through the loosened mucosa and made fast to the mucosa and skin at the lower angle of the wound. Eighteen months later the patient returned, saying the stricture had recurred. Only a thin veil of mucous membrane at the anorectal junction was found. This was easily broken and a No. 9 Wale's bougie passed readily through the entire strictured area. The roentgen ray revealed tubercular deposits in lungs at this time. In my experience medication is futile in organized rectal strictures. Recently, however, I have observed that modern methods of treatment may control and check syphilitic hemorrhagic proctitis and ulcer, which might lead to stricture. Rectal stricture—one of the great banes of syphilis—can be prevented if ulcer is treated early before great destruction begins. This leads me to again urge periodic proctoscopic examinations. Some years ago I succeeded in dilating a colostomy stricture from the size of a small probe to that of one's thumb by keeping it packed with small pledgets of cotton covered with petrolatum. This success induced me to use one of my rectal tampon covers in a similar way in rectal stricture with some degree of success.

DR. J. COLES BRICK, Philadelphia: Dr. Yeomans has presented an instrument for the purpose of diagnosis. The pathologists of the Jefferson Hospital tell me that a crushed section removed by any cutting instrument is not suitable for the purpose of diagnosis and ask for a nice, cubical piece. If the stricture is where the peritoneal vessel occurs that is particularly dangerous. If you do not get a correct diagnosis you are misled. If you attempt to remove or do remove a proper section it is dangerous. Therefore, I say that the diagnosis is properly made by clinical judgment and secondary symptoms. Do not take out a crushed section; you will be misled. Do not try to remove a proper section or you will do damage.

DR. DWIGHT H. MURRAY, Syracuse, N. Y.: In securing a section, I use a snare, and I find that I can cut tissue in that way without any crushing. I do not remove it rapidly. I put the snare over the tissue that I want to take, and then take about ten minutes in drawing the snare up so as to cut the section off. Then I do not get the excessive bleeding that might follow rapid removal of the section. A child 16 months old was brought to me six months ago. The child had a congenital stricture and had been passed around from one physician to another until three or four had seen the case. The child had never had a proper bowel movement, and could not have had with the stricture it had. Last September when the child was a year old it began to make peculiar straining and pressure, and crying with every stool. When I saw the child it had a mass as large as a baby's head and I could just about get the tip of my finger into the anal canal. The only bowel movement that child was getting, notwithstanding that it was getting castor oil and cathartics and enemas, was just a little washed off from the outside. I did a posterior proctotomy, and then proceeding with my mining tools to dig out the "pay dirt," I got a full paint can of hard feces, dry and hard as timber, so that it would sound like a stone when it dropped into the pus basin.

Then for five days after that every morning I would get a few more of the same degree of hardness, showing that the colon was filled from one end to the other with this impaction.

Dr. E. G. Martin, Detroit: I wish to emphasize the nonsurgical treatment of syphilitic stricture. In seven cases from our clinic at Harper Hospital, which were tentatively diagnosed as syphilitic from the history and examination, and afterward verified by the Wassermann blood test—all occurred in colored people. Most of these strictures were small in caliber but dilatable by the finger without anesthesia; one patient required anesthesia, being very sensitive. However, the stricture was easily dilated and cleared out without instrumentation. Three are symptomatically cured, all have greatly benefited from antisyphilitic treatment, and dilatation once or twice a week. I have referred particularly to the annular strictures, the tubular cicatricial ones usually requiring more radical treatment. Of the seven blood Wassermanns, one was negative; of three spinal fluid Wassermanns, but one was positive.

Dr. John L. Jelks, Memphis, Tenn.: Will some physician tell us in what proportion of cases he gets a positive Wassermann from the blood and what proportion from the spinal fluid?

Dr. Charles Drueck, Chicago: In the cases of old syphilis or patients who may be suspected of having syphilis, when they have drifted around to several practitioners, it is unreliable to try to get Wassermanns of the blood, and I have limited all my examinations where I really am anxious about them to spinal punctures, and I place a great deal more dependence on this, believing that when I get a negative it is a negative.

In those cases where we have a differentiation come up between a benign and a malignant tumor I feel that the loss of weight is sometimes important. In all these rectal cases there is disturbed digestion, not necessarily a disturbed assimilation; but if that disturbed digestion has gone on for a reasonable length of time, two or three years, and the patient has not lost weight, we can infer that it is not progressive. On the other hand, a case that has gone on with disturbed digestion, with pelvic symptoms suspicious of cancer for a couple years, I feel must lose some weight. I do not see how they can keep up their weight in the malignant cases.

Model Dairies in Mesopotamia.—According to U. S. Consul Oscar S. Heizer, at Bagdad, the British military authorities have established model dairy farms at Bassorah, Amara, Kut, Bagdad, Ramadi, Hillah and Nasiriyah. These are managed by experts and the milk is treated under hygienic conditions. Each farm has been equipped with an up-to-date dairy plant and machinery and the whole dairy produce, consisting of milk, cream, and butter is turned over to the military hospitals. Large numbers of cattle have been imported from India and efforts are being made to improve and increase the herds in Mesopotamia.—*Commerce Reports.*

Clinical Notes, Suggestions, and New Instruments

THE WHISTLE TEST: AN AID IN THE DIAGNOSIS OF GASTRIC TUMOR

Robert M. Lewis, M.D., Baltimore

In the field of abdominal surgery, nothing is more important and interesting than making the diagnosis in a case of puzzling abdominal tumor. Often one cannot tell at all at first sight just what organ is involved. Arriving at the right anatomic diagnosis often depends on the careful elimination of several possible contiguous sites of disease.

In the upper abdomen, a variety of tumors are frequently encountered. In this region, where the stomach is the commonest organ primarily involved in the event of a new growth, a cancer of the pylorus or greater curvature has frequently been mistaken not only for malignant disease of other organs, but also for a movable kidney or spleen, a cyst of the pancreas, a retroperitoneal growth, an enlarged gallbladder, or an intraperitoneal abscess.

Palpable intraperitoneal masses: *A*, gastric growth; *B*, tumor not springing from stomach.

A skilled examination by use of the roentgen ray usually determines, fortunately, whether or not the stomach is at fault. The stomach tube also often gives circumstantial evidence of the presence of gastric cancer in the form of blood; but in the absence of this finding one cannot exclude malignancy.

Blowing up the stomach by Seidlitz powders or other means is a rather dangerous and unreliable way of outlining the organ. For several years I have employed a simple means of quickly and accurately determining the boundaries of the stomach, and in a number of puzzling cases have plainly proved or disproved the gastric involvement before the patient came to the roentgen-ray room or operating table. The method is so easy and efficacious that possibly it is in use elsewhere; but I have never seen it employed in any other clinic and therefore venture to describe it.

The patient with an intra-abdominal tumor of an unknown point of origin is fed a fine duodenal tube equipped with any one of the usual types of metal buckets. This is swallowed with two glasses of water. If there is any difficulty with choking, it can often be overcome successfully by enclosing the metal piece in a gelatin capsule. A rubber syringe or injection bulb is connected with the free end of the duodenal tube. When the stethoscope is placed over the epigastrium and little spurts of air are suddenly injected through the tube into the stomach by squeezing the bulb, the listener at once hears a bubbling or whistling sound under the stethoscope, apparently right in his ear. In moving the stethoscope bell about he continues to hear, as long as it is placed directly over the stomach, a sharp direct sound. As soon as the stomach border is passed, however, and the bell is placed over the colon or small intestine, the sound at once becomes distant

and less distinct. In this way the organ can be mapped out with remarkable exactitude.

Next, let the bell be placed over the tumor. Here, if the mass is a gastric growth, the sound will continue to be heard close at hand, as over the stomach. On the other hand, if the mass springs from a neighboring organ, no matter how near it lies, the sound produced when the air is injected at once seems quite distant. So great is the difference in the transmission of the sound that no experience of previous trials is necessary for the examiner to say immediately and with certainty that the mass in question is or is not a gastric tumor.

The test is easily applied and, without upsetting the patient, gives valuable information. It would seem worth while to determine the position and outline of the stomach in this way every time a tube is passed on a new patient. I have examined a number in cases in which the diagnosis was in doubt, and the method has so far never failed me.

A glance at the illustration will be found helpful. *A* and *B* indicate palpable intraperitoneal masses: *A*, a gastric growth; *B*, a tumor not springing from the stomach. Listening over the stomach or over *A* will give the same nearby distinct sound, while over *B*, though near the stomach, the sound is distant.

It is likely, too, that the same test will prove of value in examining growths in the left iliac fossa. By introducing the bucket into the sigmoid or rectum it is reasonable to suppose that the sound will be transmitted along the ascending colon. In this way tumors of the ascending colon can probably be distinguished from retroperitoneal and other growths.

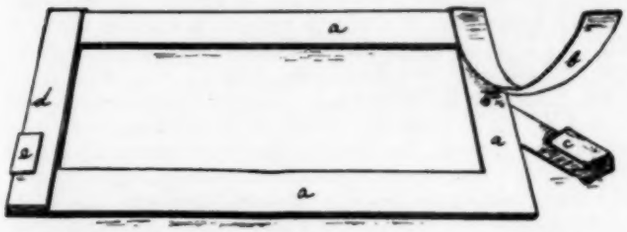
1418 Eutaw Place.

STEREOSCOPIC ROENTGENOGRAPHY WITH FILMS

HOWARD CURL, A.B., M.D., MADISON, WIS.

One objection to the use of films in roentgenography has been the difficulty of holding the films in the viewing box. This may be done by placing the films between two clean glass plates and securing them with spring clips or adhesive tape. If but few cases are handled each week, this method will do very well, but becomes rather irksome if many cases are handled daily.

To meet this objection we have had made, for our use, a film holder which is shown in the accompanying sketch. The



Film holder for holding films in the viewing box in roentgenography: (*a a*) frame; (*b*) brass spring; (*c*) clip; (*d e*) spring and clip in place.

frame (*a*) is made of galvanized iron. It should be heavy enough not to bend easily. The outside dimensions are the same as those of the film with which the holder is to be used. Each side and end are from one-half to three-fourths inch wide, depending on the size of the frame and the weight of the material. Across each end is a brass spring (*b*). One end of the spring should bend around the edge of the frame and be riveted on the under side, so that the spring is free from the form on the upper side and will admit the film to the edge of the frame. The other end of the spring is brought down and held with a brass clip (*c*).

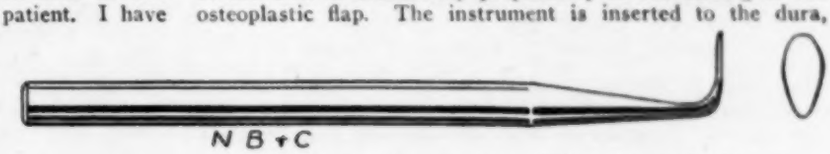
These film holders can easily be made by any tinsmith or plumber, and if a number are kept on hand, films may quickly be inserted for the viewing box.

With this arrangement, stereoscopic work may be done just as satisfactorily and easily as with plates, and especially is this true if the double coated or duplitized films are used, as they are stiffer and more easily handled than the single coated film.

DURAL SEPARATOR AND BONE ELEVATOR FOR CRANIOTOMY

ADOLPH M. HANSON, M.D., FARIBAULT, MINN.

This illustration, actual size, represents an instrument for separation of the dura from the internal table and elevator for fragments of the internal table following the use of the drill in craniotomy preparatory to the cutting of the osteoplastic flap. The instrument is inserted to the dura,



Dural separator and bone elevator for craniotomy.

portions of the remaining internal table are lifted up, and the instrument is rotated between the thumb and forefinger, separating the dura from the internal table well beyond the margins of the opening made by the drill.

RESECTION OF THIRTEEN FEET OF ILEUM

JOHN R. LITTLEFIELD, M.D., CUMBERLAND, MD.

S. W., a woman, aged 22, married, nullipara, weight, 110 pounds, admitted to the Western Maryland Hospital, March 23, 1919, had been operated on for pus tubes in September, 1917, drainage being required. This operation was followed by an uneventful recovery and good health until March 15, 1919, at which time she consulted her physician for the relief of abdominal pain associated with vomiting and preceded by constipation. Her condition increased in severity and, March 22, the vomitus assumed a fecal character. Small semisolid bowel evacuations occurred, March 17 and 18. On the night of March 22, she was placed on a train and brought to the hospital, a distance of 159 miles.

On admission the vomitus was of a distinct fecal character; the temperature was 97 by mouth; pulse, 120, and respiration, 20. The abdomen was greatly distended, and was very tender and rigid. Peristalsis was absent. There was no hernia in the scar of the previous operation. The old scar was excised and the peritoneal cavity opened, a moderate amount of blood-stained fluid escaping with the protrusion of a large segment of gangrenous and distended bowel. Large areas of peritoneum had sloughed from the bowel wall, and the muscular coat was plainly visible in these areas. The omentum was found to be rolled into a firm band and, with a knuckle of intestine, was firmly adherent to the left horn of the uterus. These adhesions were broken and the entire loop of gangrenous bowel was delivered from the abdomen. This loop, including sound tissue at each end, and measuring 13 feet, was isolated by ligating with small tape and then excised, the mesentery being rapidly transfixed and ligated as the resection progressed. An end-to-side anastomosis was made by sutures, an end-to-end anastomosis being impossible owing to the tension which would have resulted, there remaining only 6 inches of the jejunum and what appeared to be about 4 feet of the ileum. The abdomen was closed without drainage. One hour and ten minutes was required for the operation.

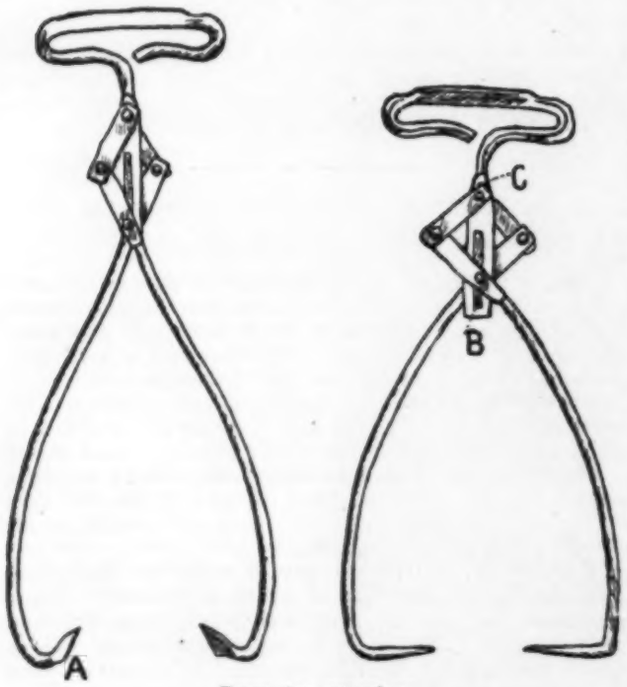
The after-treatment consisted of maintaining the Fowler position, rectal drip tap water for the first twenty-four hours, followed by a 10 per cent. solution of glucose during the next forty-eight hours. Hypodermics consisting of atropin sulphate, 1/150 grain, morphin sulphate, 1/6 grain, and a little digitalis were administered every four hours for the first

twenty-four hours. The stomach was washed every four hours, but the vomiting of a dark foul-smelling fluid continued for seventy-two hours. The patient complained of great thirst, and after the first twenty-four hours was allowed moderate amounts of water by mouth. Ten days after operation a small abscess developed in the incision which promptly healed after the pus was evacuated. The patient left the hospital, April 24, weighing 93 pounds. She slowly recovered her strength and, June 1, resumed her housework and has continued doing housework to the present time—June 29. She now weighs 109 pounds and eats well but complains of abdominal pains after eating coarse food, pastries, etc.

HOME-MADE ICE TONGS FOR EXTENSION

B. F. STEVENS, M.D., EL PASO, TEXAS
Attending Surgeon, El Paso County Hospital

Ice tongs for extension may be easily and cheaply improvised from a pair purchased at a five and ten cent store, as here shown. To make them suitable for our use, the ends



Tongs for extension.

at *A* are cut off with a file, and new ones turned in, and then sharpened with the same tool or, better, an emery wheel. They are strong enough to sustain a pull of 30 pounds without bending. The opening at *B* is suitable for a wooden wedge, which may be placed after the tongs are adjusted, which will keep the points from approximating too closely and penetrating the bone too deeply. Another at *C* will keep the tongs from becoming unfastened in case anything should happen to the weight.

The Drop in the Birth Rate in France.—The *Bulletin Médical* quotes Rebeillard's official report to the Conseil général on the child wards of the state in the département de la Seine. He stated that the number of births which was 73,599 in 1911 was only 47,480 in 1918, and during this last year the number of children abandoned by their parents was 3,149. The proportion of children thus turned over to public charity has risen from 4.90 per cent. in 1911 to 6.90 per cent. in recent years. The infant death rate, which was 19.66 before the war, has risen to 40 per cent. in 1918. The almost complete lack of wetnurses has contributed to this high death rate. In 1912 the Assistance publique had 1,363 wetnurses at its disposal, but in 1918 the number fell to sixty-five.

ABSTRACT OF DISCUSSION

ON PAPER OF DR. EUGENE S. TALBOT

(*This issue page 805*)

DR. G. V. I. BROWN, Milwaukee: The government has made a radical ruling during this war, distinguishing between the plastic surgeon and the facial surgeon who must have had a medical degree, and the dental oral surgeon who had only the dental degree. The National Dental Association is going to give quite a little consideration to this matter at its next meeting. I think that the question that Dr. Talbot deals with, and the suggestion that he makes in his paper of having an executive committee from this section attend meetings where there is discussion of dental education, representing in a more or less official way this section, is one that is worthy of thought.

DR. M. I. SCHAMBERG, New York: It becomes an absolute duty on our part, as a section, to take a definite position in the matter of the medical education of the dentist. At no time in the history of dentistry or medicine has it become so apparent to the medical profession, to the lay public, and to those of us who are vitally interested in this special feature, that medical education of the dentist and the complete medical education, is essential. I am convinced that there has been no period in the history of dentistry or medicine, when the opportunity is so favorable for this change. Men who take three or four years of study, which is almost paramount to the course in the medical schools, are entitled to a situation in this world, equal to the graduate of the medical school. It is asking too much of a man to spend that amount of time, and then be looked on as only obtaining partial medical culture. I would merely sound one note of caution in approaching the subject: that we do not put it quite in the way the chairman has. I think probably he might be induced to modify that term—of saying that they can have their mental training during the winter, and mechanical training during the summer, because that is almost a slap at mechanical training, which, after all, must be mental as well as manipulating.

DR. E. A. BOGUE, New York: There is in the dental profession, an idea of lack of recognition by medical men that is pretty general. As soon as our men are prepared the medical profession is prompt to recognize. If it were in the power of this section to encourage the younger men to go through the medical school it would be desirable. I knew pretty intimately Sir John Tomes and J. Smith Turner, who are responsible for the dental law of England; yet, with all the care which was given by them and their friends, the unqualified practitioner in number surpasses the other practitioners in England today. There are many in England to come up to the level which has been formed by our well qualified men during the war.

DR. FREDERICK B. MOOREHEAD, Chicago: One does not need to look far to discover the trouble in dental education. The whole fault lies in the organization of a separate training for dentists. The dentist should receive, in a large measure, the same training as the physician, and dentistry will never be a satisfactory component of medicine until the dentist and physician are on an educational parity. To bring about the necessary change in dental education, it will require several years and must be done by evolutionary rather than devolutionary methods. We face a condition, and not a theory, in the premises. The people must be cared for in the matter of dentistry, and with the increasing knowledge on the part of the layman of the dangers of mouth infections, there is going to be a corresponding increased demand for dental services. To meet this demand more dentists will be needed. It would seem, therefore, that the first responsibility in dental education is not to decrease the output of dentists, but strengthen the dental curriculum to a point which will bring about a change of character in the dental students. We have at present, a four year curriculum with a high school graduation for admission, and in 1921 the better dental colleges of the country will require one year of college for admission to the dental curriculum. This will necessarily decrease the

output of dentists somewhat, and the requirement of one year of college for admission will probably have to stand for a number of years at least before any additional steps can be taken with safety. As soon, therefore, as the supply or demand will warrant, two years of college should be required for admission to the dental curriculum, which will place the dental student and the medical student on a basis of equality. When this step has been reached the first two years in dentistry and medicine may be identical. At the end of this period the dental student may undertake special training, and the medical student may also select his own special field of practice. A degree in medicine should then be conferred on both groups. We have before us an exceedingly difficult task, which must be faced with considerable thought and care. The supply must not be reduced seriously, and yet at the same time the training of the dentist must be of a different character if he is to functionate as an intelligent part of the medical program. It may be true that the question is too large for any early solution, and that we shall have to arrange for the special training of persons who will practice dentistry from a medical standpoint purely, and continue to train students for the general practice of dentistry as in the past.

DR. W. C. FISHER, New York: We speak of requiring a one year course in college. The Council on Medical Education, in their report, emphasize one great point: That there was one year of the four years in the high school that could be saved; and it was the consensus of opinion of many of the faculties, that the first year in college is almost a wasted year. If you are going to ask one year college education as a requisite of entrance to the dental college, you are asking a man to spend a year almost wastefully because that first year in college is a year of finding oneself. The Council on Medical Education thought that they must stop adding years to the time when a man may take his degree; that the limit has not only been reached, but it has really been passed; that they must now endeavor to go back to the preliminary education, and cut off years from that. This differs distinctly from Dr. Moorehead. If the young man is capable of going to college from high school, he is capable of going to medical or dental college. The medical faculty could exercise over these students the same care in their dental and medical colleges that they obtain in the schools of letters.

DR. ARTHUR D. BLACK, Chicago: I think that no matter from what angle we discuss this question, we must eventually come back to the ground on which Dr. Talbot has stood for all these years, and that is that the education of the dentist must be practically the same in its foundation work as that of the physician. I believe there is no question in the minds of most men who are interested in medical education, but that it would be thoroughly practical to cut out a year somewhere in the high school, or possibly in the grade school, and thereby bring a man up to entrance to the medical school a year earlier. In proposing to do so, we can not overlook the fact that a comparatively small percentage of high school graduates enter college, so that our problem is a side issue with those who are in charge of the elementary schools. I only mention that to emphasize the complexity of the problem that we have before us. In the management of our public schools, educators seem to be gradually coming to the realization that a year cut off for everybody, would be to their advantage, and eventually this may be brought about.

I would like to emphasize what Dr. Moorehead has said of the necessity of this being an evolutionary matter, and to impress the fact that it will take a good many years to accomplish our present objective. Suppose, for example, that the dental schools require one year of college for entrance in 1921, and that possibly in 1925 they require two years of college; that means it will be 1929 before we have our first graduates of a dental school on a parity with the graduates of the medical schools of today. It seems like a long time in advance, and yet that is the very earliest time within which the change can be made. Nevertheless, if we look backward for a period of ten, fifteen or twenty-five years, I think we can not help but realize that we have been making progress in all these years, and we are going to continue.

DR. CHARLES R. TURNER, Philadelphia: I feel that dental education has a present plotted out for itself, the same program that it has ever plotted out for itself. Dental prestige in America came, of course, originally from the development of the mechanical or the manipulative side. It was that, of course, which brought it to the attention of the practitioners of this profession in other parts of the world; in fact, for many years, that was "American dentistry." That is all there is to it; and that very thing has been our undoing. We have hitched our wagon to that thing for too long a time, so that, as we all know perfectly well, we are now beginning to realize that it has blinded us to a proper appreciation of the vital relationships of these things. Now we have within the last few years been paying particular attention to trying to correct that thing, but attaching greater significance to what may be called the vital relationship of dental operations; and it has been along that line that dental education has been working in the last few years. We must remember that the dentist must not only have knowledge, but he must have skill. It is wise for us to bear that phase of the matter in mind, and I must confess that I am disposed to feel that the training of the fingers should start as early as possible.

DR. EUGENE S. TALBOT, Chicago: I brought out in my paper the vital points that we have got to consider immediately, the points that I have stated in the paper have been known from a pathologic point of view for a great many years, and I have occasionally, from time to time, called the attention of the profession to those vital things in pathology, the statement I made more than thirty years ago, that dentistry was producing more pathology than any one cause is beginning now to be recognized. The vital points in this paper have got to be considered right away, for the reason that we are producing more pathology than the patient; that is to say, nearly every operation that is performed in the mouth produces and leaves later in the mouth a pathologic condition. We have got to immediately change our methods of teaching. The whole thing lies in the dental school. We have got to teach pathology, and make mechanics a second consideration.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

BENZYL ALCOHOL (See New and Nonofficial Remedies, 1919, p. 52).

Benzyl Alcohol (Van Dyk).—A nonproprietary brand of benzyl alcohol complying with the tests and standards for benzyl alcohol.

Manufactured by Van Dyk and Co., New York City.

CINCHOPHEN.—A nonproprietary name applied to phenylcinchoninic acid (Acidum Phenylcinchoninicum, U. S. P.).

Actions, Uses and Dosage.—See under Phenylcinchoninic Acid and Phenylcinchoninic Acid Derivatives (New and Nonofficial Remedies, 1919, p. 226).

Cinchophen-Abbott.—The Abbott Laboratories have adopted the name cinchophen for the product accepted as phenylcinchoninic acid-Abbott (see New and Nonofficial Remedies, 1919, p. 227).

Cinchophen-Morgenstern.—Morgenstern and Company have adopted the terms cinchophen and sodium-cinchophen-water for the products accepted as acid, phenylcinch.-Morgenstern and sodium phenylcinch. water-Morgenstern (see New and Nonofficial Remedies, 1919, p. 227).

Cinchophen-Calco.—A brand of cinchophen. It complies with the standards for Acidum Phenylcinchoninicum, U. S. P.

Manufactured by the Calco Chemical Company, Newark, N. J., U. S. patent No. 1,075,171 (Oct. 7, 1913; expires 1930), No. 1,197,462 (Sept. 5, 1916; expires 1933), No. 1,086,881 (Feb. 10, 1914; expires 1931) under license from the Chemical Foundation, Inc.

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SATURDAY, SEPTEMBER 13, 1919

THE INHERITANCE OF ACQUIRED CHARACTERS

There is something almost dismal in the currently popular theories of heredity, so far as they apply to the human race. If we complacently accept the mendelian doctrine, the outcome of all matings and consequently the hope for the future seems to depend on the almost inflexible mathematical distribution of unit traits through the fortuitous unions that occur. Education, under this doctrine, cannot create capacity; it can merely enable an individual to utilize more fully his inherent potentialities. Training does nothing more than give an opportunity to latent capacities. Hundreds of experiments have demonstrated that acquired characters cannot be transmitted. Neither accidental mutilations nor intentional operative alterations in the organism become transmitted to the offspring. The children of parents with amputated limbs continue to be normal in respect to these appendages.

Fischer[1] has recently urged the reacceptance of the theory of inheritance of acquired characters, interpreting the latter in the lamarckian sense. He submits that mutilations are not acquired in the true functional sense—they are inflicted. Truly acquired characters are those developed in a functional way through the effort or performance of the individual concerned. In urging this point of view, Redfield[2] has pointed to the records of horse breeding, one of the fertile fields for the accurate study of heredity. It is claimed that training, that is, functional activity, is indispensable to secure acceptable inheritance. Speaking of racehorses, Fischer says that "the winners of a new generation are the progeny of hard working parents, the losers the sons and daughters of the retired best families." In the domain of dairy cattle the functional character of milk production seems to be enhanced with each successive calf in the record families. Early born calves are far less likely to be great producers than are the later offspring of the same cows. The youngest daughters of the oldest cows are shown by experience to tend to be superior.

The corollary to this contention that performance is not without influence in heredity has been sought by Fischer[1] in the pages of human history. Insisting that, other things being equal, a father or mother of maturer years is more definitely possessed of acquired mental character than a younger one, Fischer maintains the thesis that the offspring of older parents have exemplified in a striking way the inheritance of the acquired characters. According to his statistics, if the probability of being eminent when born of a father between 35 and 40 is taken as unity, the probability if born at 25 is less than one fifth as great. Ascending the age scale, the probability at from 50 to 55 is five times that at from 35 to 40, and over 60 it is ten times that.

Statistics on human heredity are notably difficult of analysis. The study of the inheritance of character, such as mental traits or degrees of eminence, which cannot be measured in customary ways, is beset with many entanglements. But since the current rock-bound conceptions of inheritance and its limitations fail to satisfy the searcher for "new hopes," every attempt to find a more flexible possibility of human betterment than the current eugenics theories afford will find some hearing.

1. Fischer, M. H.: The New Hope in Heredity, The Unpopular Review, **11**: 320 (April-June) 1919.
2. Redfield, L.: Dynamic Evolution, New York, G. P. Putnam's Sons, 1914.

PROTEIN SYNTHESIS: A CHAPTER IN TISSUE REGENERATION

In the higher forms of life, such as man, the metabolic processes never become dormant. Energy is required every minute of every hour during life to enable the indispensable functions to be continued. Consequently, whenever the food intake is insufficient for the needs of the body, the organism is compelled to "live on itself." Loss of protein is an invariable accompaniment of this enforced squandering of the hoarded resources; but it has long been recognized that such a loss can be diminished or even prevented by adding other foodstuffs to the diet. The student of nutrition has accordingly learned to speak of the "protein-sparing action" of these nutrients, among which carbohydrates rank first in this respect.

How do carbohydrates "spare" protein? Do they merely act by furnishing energy which directly replaces protein that would otherwise be disintegrated for immediate use? If so, the explanation of the protein-sparing action or protein-protecting power of carbohydrate would be that it checks the destruction of tissue protein at its source. If this were the correct and sole interpretation of what carbohydrate feeding accomplishes, it ought to be "protective" toward protein only so long as the fuel value of the food is insufficient. But an abundance of carbohydrate may even lead to protein storage when the energy intake is

otherwise adequate. Hence, as Sherman[1] clearly points out, the fact that addition of carbohydrate or fat to a diet already sufficient may cause an actual shortage of protein indicates that the protein-sparing action of these foodstuffs involves something more than merely the question whether the body needs to burn its stored protein as fuel.

Another explanation for the favorable effect of carbohydrate feeding on protein metabolism has been sought in the suggestion that sugars or their derivatives in some way intervene in the reconstruction of protein fragments into amino-acids and new protein. From this standpoint, protein might be spared by carbohydrate, not because its breakdown is prevented at the source, but because the carbohydrate helps to fix and thereby conserve disintegration end-products so that they are rendered available for the building of new protein in the body. In favor of this view, Whipple[2] and his associates of the George Williams Hooper Foundation for Medical Research, University of California Medical School, have cast new experimental facts. Their observation that a suitable chloroform anesthesia during a fasting period will provoke a type of necrosis that may lead to the destruction of one half or more of the liver tissue, and that under favorable conditions complete repair can be effected in a few days, has given an opportunity to study the rôle of diet in the reconstruction. The exceptional character of this restitution is indicated by the fact that the tissue may be renewed at the rate of from 100 to 150 gm. (3 to 5 ounces) per day, equivalent to the construction of a mass of liver cells the size of the normal spleen or kidney every twenty-four hours.

The report states that liver repair is much more rapid and complete on a sugar or high carbohydrate diet than it is on starvation. In fact, an injury of one half of each liver lobule may be completely repaired in nine days on a sugar diet, but only 50 per cent. repaired under fasting conditions. In such cases, protein must obviously be synthesized on a large scale. Hence Davis, Hall and Whipple insist that their observations furnish convincing evidence that the "protein-sparing action of carbohydrate" in this instance is a true conservation of protein cleavage products. This evidence, they add, cannot be explained as protein sparing at the source or as simple inhibition of protein autolysis or catabolism.

Fats, on the other hand, do not aid liver regeneration in the way just noted; nor is meat as favorable to rapid repair as is a rich carbohydrate diet. Davis and Whipple,[3] who ascertained these facts, recognize that fat may spare protein in ordinary metabolism. When fat is burned as fuel, protein is protected from destruction. But since fat lends no essentially superior efficiency to the repair processes after liver necrosis in the way that sugar does, we must conclude, with the latest investigators, that fat acts as a "protein sparer" not by conservation of end-products and reconstruction of new liver tissue, but by some protecting action at the source of tissue catabolism. This defines what they conceive to be a clean-cut difference in the metabolism of fat and carbohydrate relating to protein construction and destruction. Since heavy protein feeding has been found most favorable to the regeneration of serum proteins,[4] it remains to be ascertained whether the interesting observations made on a large organ like the liver are peculiar to it or apply to metabolism in all parts of the body. Equally undemonstrated is the suggestion[2] that the liver may be the place in which the union of carbohydrate and protein split products may be made permanent, whether the resultant products are to be used in the liver or elsewhere in the body.

1. Sherman, H. C.: The Chemistry of Food and Nutrition, New York, The Macmillan Company, 1918, p. 210.
2. Davis, N. C.; Hall, C. C., and Whipple, G. H.: The Rapid Construction of Liver Cell Protein on a Strict Carbohydrate Diet Contrasted with Fasting: Mechanism of Protein Sparing Action of Carbohydrate, Paper III, Arch. Int. Med. **23**: 689 (June) 1919.
3. Davis, N. C., and Whipple, G. H.: Liver Regeneration Following Chloroform Injury as Influenced by Various Diets: Mechanism of Protein Sparing Action of Fat, Paper IV, Arch. Int. Med. **23**: 711 (June) 1919.

THE TREATMENT OF ACUTE EMPYEMA

Among the interesting developments in the field of surgical therapy in the past two years, few have exceeded that of empyema of the chest in the thoroughness of the study to which it has been subjected, and in the applicability of the results of such study to the problems of civil life. In the prewar days it had been accepted that the proper treatment of an accumulation of pus in the pleural cavity was free drainage by thoracotomy, with or without rib resection, and usually without irrigation, supplemented by the use of breathing exercises and mild calisthenics to encourage expansion of the lungs. A few surgeons attempted further to supplement thoracotomy by the use of a suction apparatus applied to the drainage tubes, but without sufficient success to encourage general adoption of this measure.

The objections to simple thoracotomy were in general twofold: 1. It permitted collapse of the lung through the equalization of air pressures within and without the pleura. This collapse occasionally became permanent, necessitating secondary operations of dubious prognosis for the obliteration of the discharging cavity thus produced. 2. The abundant drainage for the first few days or weeks following operation frequently became a great burden to nurse and patient. As these objections were of sufficient importance to stimulate interest in any method that promised to obviate them, the results of the efforts of the Army Medical Corps in the treatment of large numbers of postinfluenzal empyemas have been eagerly followed. Early in

4. Kerr, W. J.; Hurwitz, S. H., and Whipple, G. H.: Am. J. Physiol. **47**: 356, 370 and 379 (Dec.) 1918.

the epidemic, thoracotomy and drainage were instituted as soon as the diagnosis was made, with a very high resultant mortality. Thereupon three general plans of treatment were developed: 1. A revival, with modifications, of the old Thiersch or closed method in which a catheter is passed into the chest through a trocar and the trocar removed, the catheter being anchored to the chest wall by adhesive plaster; to the outer end of the catheter is attached a collapsible rubber tube, the free end of which is inserted into a bottle of water. "The theory is, that when the patient expires, the pus runs out through the tube, and on inspiration the collapsible walls of the tube are sucked together and prevent the entrance of air, and cause negative pressure in the chest, favoring expansion of the lung."[1] 2. The Thiersch method plus the instillation of antiseptic solutions, chief of which were surgical solution of chlorinated soda (Dakin's solution) and formaldehyd glycerin. 3. Thoracotomy with free, open drainage plus irrigation with antiseptic solutions.

Conflicting reports have appeared concerning the efficacy of each of the numerous modifications suggested, but at last we seem to have returned to the prewar conception of the necessity of free, open drainage in the treatment of true empyema, the principal remaining bone of contention being that of the instillation of antiseptic solutions into empyema cavities. Dodge[2] is emphatic in his declaration against the use of antiseptic irrigations, maintaining that "irritating antiseptics," such as Dakin's solution, not only do not assist in removing fibrin masses, but actually cause a fibrinous exudate to appear on the pleura, binding the lung down and so greatly interfering with the obliteration of the empyema cavity. According to Dodge, if the drainage opening is of sufficient size and correctly located, nothing more is essential; in exceptional cases, irrigation with a bland solution, such as physiologic sodium chlorid solution, may be desirable. The majority of reports speak favorably of Dakin's solution in empyema, some going so far as to regard it as essential. In some instances it certainly appears to have greatly shortened convalescence.[3]

In a discussion of this subject it should never be forgotten that empyema occurring in influenzal pneumonia is quite different, pathologically, from the postpneumonic empyema with which we are familiar in civil life.[4] In the former, a purulent pleural exudate appearing within a few hours of the onset of pneumonia is of secondary importance to the pulmonary condition. If prompt thoracotomy is done, grave respiratory embarrassment is almost certain to follow. The source of intoxication at this time is in the lungs, not the pleura. Treatment should be palliative —by aspiration. As the pneumonic process subsides, the pleural exudate may be absorbed without further treatment; if spontaneous cure does not occur, thoracotomy will be necessary, but should never be done while the pulmonary inflammation is active. Early thoracotomy was apparently an important contributing cause of the high mortality from empyema during the early months of the epidemic. In the case of empyema following lobar pneumonia, the pleural exudate becomes purulent late in the course of the pneumonia, and as a rule is then the sole source of the toxemia from which the patient suffers. The fundamentals of treatment in this condition are those of the prewar period.

1. Lund, F. B.: The Advantages of the So-Called Decortication of the Lung in Old Empyema, J. A. M. A. **57**: 693 (Aug. 26) 1911.
2. Dodge, W. T.: Empyema at Base Hospital, Camp Sherman, Ohio, J. A. M. A. **72**: 1808 (June 21) 1919.
3. Rodman, J. S.: Empyema, Ann. Surg. **70**: 49 (July) 1919. Stevens, F. A.: Recurrences after Operations for Empyema, The Journal, this issue, p. 812.
4. Hartwell, J. A.: Treatment of Empyema, Ann. Surg. **70**: 55 (July) 1919.

PHYSIOLOGIC RELATIONSHIPS OF IODIN

The importance of iodin and its compounds for the proper functioning of the healthy organism is beginning to be appreciated. The rôle of the element to which reference is here made is a purely physiologic one—an influence quite distinct from the effects which have long been ascribed to iodids as they are used in large doses in human therapy. Most important of the newly recognized features is the relationship between the function of the thyroid glands and the iodin-containing material present therein. For example, Marine of Cleveland has observed that the amount of iodin is inversely proportional to the degree of hyperplasia of the gland; and when the hyperplastic condition becomes fully developed, scarcely a trace of iodin is left in the gland. When the hyperplasia gives place to colloid goiter, the iodin increases both relatively and absolutely. Moreover, it has been found that if an iodid is administered to an animal suffering from hyperplasia, the hyperplastic condition promptly disappears and the animal becomes normal.[1] We have also called attention to the recent observations of Marine and Kimball[2] on the efficacy of small doses of an iodid administered to schoolchildren living in goitrous regions, such as those about the Great Lakes in the United States. The fetal athyreosis observed in domestic animals in some of our Western states can likewise be averted by dietary administration of small quantities of iodin-bearing substances.

The minuteness of the quantities of iodin involved in these various physiologic functions has made it difficult to obtain accurate estimations of them. In the thyroid, where the element accumulates, the few milligrams of iodin present can be ascertained analytically; but the far smaller proportions which must be assumed to circulate from time to time incidental to their physiologic performance have eluded analytic

1. Macleod, J. J. R.: Physiology and Biochemistry in Modern Medicine, St. Louis, C. V. Mosby Company, 1918, p. 752.
2. Marine, David, and Kimball, O. P.: J. Lab. and Clin. Med. **3**: 41, 1917. Thyroid Hyperplasia and Iodin, J. A. M. A. **70**: (March 23) 1918.

pursuit. Recently, through refinements in the methods for determining very small quantities of iodin, Kendall[3] of the Mayo Clinic has estimated the amount in blood at approximately 0.015 mg. per hundred c.c. The content in the tissues is slightly greater—about 0.03 mg. per hundred gm.; in the liver it may reach 0.04 mg. per hundred gm. of this glandular organ. These statistics are of interest in indicating the extremely small amounts of iodin-containing compounds that seem to be essential for metabolic needs.

The crystalline compound thyroxin, which Kendall has succeeded in isolating from the thyroid gland and which he regards as the physiologic hormone of that structure, contains about 60 per cent. of iodin. According to numerous observations at the Mayo Clinic, 1 mg. of thyroxin increases the metabolic rate 2 per cent. in an adult person weighing approximately 150 pounds. Kendall estimates that this figure is in reasonable accord with the quantities of iodin actually found in circulation. It is asserted that if only a single administration of thyroxin is given, a demonstrable action may fail to be produced. Three or four successive daily administrations may be necessary in order to evoke evidences of hyperthyroidism. Kendall's explanation[3] for this is found in his observations on the elimination of thyroxin from the body. He asserts that as much as 60 per cent. may be rapidly eliminated with the bile. In one instance 8 per cent. was found in the urine, so that a remaining one third of the hormone introduced may be assumed to have been taken up by the thyroid gland. This, Kendall says, indicates why the single administration does not produce a physiologic response. It is only the continued presence of the iodin compound within the body which results in the increase in metabolic activity. These findings have an obvious bearing on thyroid therapy.

3. Kendall, E. C.: Physiological Action of the Thyroid Hormone, Am. J. Physiol., **49**: 136 (June 1) 1919.

Current Comment

THE JUNCTION OF URETERS AND BLADDER

A few years ago, it was customary to ascribe an ascending nephritis, following an infection of the bladder, to the reflux of bacterially contaminated urine through the ureter openings backward to the kidneys. An offhand consideration would make this seem to be the most plausible mode of transmission of infectious material from the lower to the upper parts of the urinary tract. Latterly, however, investigation has made it quite probable that the lymphatics may play an unsuspected part in this migration of microbial invaders. This view is strengthened by the accumulating evidence that the normal closure of the ureters is competent to prevent a reflux of urine toward the kidney. Recently, further support has been afforded by the investigations at the Physiological Laboratory of the Johns Hopkins University by Satani.[1] He observed experimentally on animals that the bladder can be distended very fully and so maintained without any leakage into the ureter lumen. However, after destruction of the muscles of the bladder wall which cover the intraparietal part of the ureter, the ureter opening no longer functions so perfectly as a valve. Ordinarily, it appears, the distended bladder muscles over the ureter press this tube together closely so as to prevent reflux. Under normal conditions, then, a backward flow of urine cannot take place. In addition to the anatomic relations which bring about this physical prevention, Satani maintains that the physiologic activity of the musculature at the intraparietal portion of the ureter lends assistance. He refers to a layer of longitudinal muscle on the outer side, while the Waldeyer ureter sheath covers a portion of the medial side. The contraction of the former tends to close the orifice, and the contraction of the latter causes the lip-shaped upper rim to protrude. These mechanisms, according to Satani, assist to prevent the reflux of urine into the ureter.

ORTHOPNEA

Orthopnea is the term applied to the condition of certain patients suffering from dyspnea (and notably from cardiac dyspnea), who cannot breathe as comfortably when lying as when sitting. The reason for the advantage of the upright posture has been a matter for conjecture for some time. Recently Pearce[2] summarized the uncertainty by stating that the greater vital capacity in the upright position, the favoring of the return of the venous blood from the cerebral vessels because of the enlarged thoracic cavity, and the increase in the reserve air in the lungs are all factors to be considered. A more rational explanation of the phenomenon of orthopnea has, however, latterly been offered by Haldane, Meakins and Priestley,[3] who have shown that anoxemia, or deficiency of oxygen in the circulation, and shallow breathing are interrelated in surprising ways.[4] Excess of carbon dioxid causes in the main deepening of respiration; lack of oxygen causes in the main shallow and quick breathing. Now the recumbent posture tends to accentuate any irregularity that may exist in the expansion of the lungs. Shallow breathing causes uneven ventilation of the lungs. The irregularities are less marked when the patient is in the upright position. As the English observers interpret the situation, there are persons in whom the ineffectiveness of the circulation reaches such a degree as just to make the respiratory center begin to respond to anoxemia, with its attendant shallow respiration. The patient may be fairly comfortable so long as he remains at rest in an upright position. As soon as he lies down, the irregularity in the expan-

1. Satani, Y.: Experimental Studies of the Ureter, Am. J. Physiol. **49**: 474 (Aug. 1) 1919.
2. Pearce, R. G., in Macleod: Physiology and Biochemistry in Modern Medicine, St. Louis, C. V. Mosby Company, 1918, p. 313.
3. Haldane, J. S.; Meakins, J. C., and Priestley, J. G.: The Effects of Shallow Breathing, J. Physiol. **52**: 433 (May 20) 1919.
4. Anoxemia, or Oxygen Deficiency, and Abnormal Respiration in Certain Diseases, editorial, J. A. M. A. **73**: 768 (Sept. 6) 1919.

sion of the lung alters his condition for the worse. "He still has the abnormally great drain of oxygen in the systemic blood, and in addition the oxygenation of the blood in the lungs is no longer so efficiently carried out and consequently the arterial blood carries a less quantity of oxygen than before. There is, therefore, a condition in which an increased call on the oxygen carried by the blood is coincident with a diminished saturation of the hemoglobin in the arterial blood with oxygen. Naturally, therefore, it is to be expected that there will be an exacerbation of symptoms when the patient lies down." If, as Haldane, Meakins and Priestley argue, orthopnea is due to shallow breathing caused by and intensifying anoxemia, the indication for a method of relief is clear. Oxygen should be added to the inspired air. It is interesting to note that such interferences with abdominal or thoracic movement as may be caused by corsets can hamper the even expansion of the lung sufficiently to induce periodic breathing, which is a sign of oxygen deficiency. In this case, too, the effects are more conspicuous when the person is lying down.

MODEL ORDINANCES FOR VENEREAL DISEASE CONTROL

The widespread efforts to suppress venereal diseases have necessitated the adoption by many of our cities of ordinances for this purpose. In order to aid cities desiring to legislate on this subject, the U. S. Public Health Service, with the assistance of the Law Enforcement Division of the War Department, has prepared and issued a compilation of suggested and adjudicated ordinances which have proved successful in combating venereal diseases.[1] These include a general venereal disease control ordinance, and special ordinances regulating the licensing of hotels and rooming houses, public vehicles and public dance halls, an ordinance prohibiting advertisements of venereal disease nostrums, and ordinances for the regulation of restaurants and grill booths, prohibiting the sale of venereal disease medicine except on prescription, and regulating "massage parlors." Cities desiring to enact ordinances on these subjects are advised to secure in each case the advice of competent local counsel for changes in form or substance as may be required by special constitutional, legislative or charter considerations. Each of the model ordinances has been in operation in different cities and, it is stated, has been found effective for the particular purpose for which it is drafted.

APPRENTICESHIP IN THE CARE OF THE BABY

Apprenticeship in practical work is an indispensable part of a well rounded training in more than one field of professional education. Apprenticeship may become something more than mere vocational training. It represents the opportunity to apply in concrete ways the conclusions derived from a theoretical study in some field of learning—of subjecting to the test of experience the dicta of the textbook and the lecture hall. In medicine, apprenticeship found its application in older days through the service which a young man "reading" in the office of a physician was able to render under the tutelage of his professional master. Today it is exemplified in the experience gained by the medical student through his hospital internship or dispensary service. In the domain of home economics, which has become so firmly intrenched in the education of American women, the practice house has afforded something comparable to what the hospital offers to the medical student. Recently the varied activities in the practice houses of one large educational institution, the University of Minnesota, have been diversified still further by affording opportunities to observe as well as to assist in the care of infants.[1] The latter are secured from orphanages. This form of apprenticeship in the study of the homemaker's job is an innovation which deserves to be watched with interest. The attempt to train teachers of future homemakers thus fundamentally ought to be no more difficult than the introduction of a real medical apprenticeship has been.

1. Venereal Disease Bull. 39, U. S. P. H. S.

1. The information here given was derived from Home Economics Field Note, The Vocational Summary 2:69 (Aug.) 1919.

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending September 5, there were 7,176 officers in the Medical Corps, a decrease of 359 from the previous week. The Medical Reserve Corps contained 3,370. The total number of physicians discharged since the beginning of the war is 24,947.

Dr. Oman Becomes Fleet Surgeon

Charles M. Oman, Commander, M. C., U. S. Navy, has been appointed aid to the commander in chief of the U. S. Atlantic fleet, and fleet surgeon. During the war Commander Oman served as commanding officer of U. S. Hospital Ship *Comfort*, and later of U. S. Naval Base Hospital No. 1, Brest, France. He has been recommended for the Distinguished Service Medal.

Favors Universal Military Training

The National Tuberculosis Association has notified the United States Senate that it is in favor of universal military training legislation. Senator James W. Wadsworth, chairman of the Senate Committee on Military Affairs, has presented the following resolution to the Senate:

Be it Resolved, That the National Tuberculosis Association, through its executive officers, take immediate steps to secure the cooperation of all other great health organizations, especially the American Medical Association, and state and territorial health officers, in placing before the American people a united demand for the adoption of universal military service as a public health measure.

The resolution was referred to the Senate Committee on Foreign Affairs for consideration.

Amendments Offered to War Risk Insurance Act

Under date of August 26, a bill was introduced by Mr. Sweet in the House of Representatives, to amend and modify the War Risk Insurance Act. The amendment provides for the appointment of a director of the Bureau of War Risk Insurance, to conduct the bureau. It defines "active service"; increases the amount of compensation for disability; enlarges the class of beneficiaries so as to include in addition to those already included, uncles, aunts, nephews, nieces, brothers-in-law and sisters-in-law, of the insured. Another section provides that the bureau may make provision in the contract for converted insurance for optional settlements to be selected

by the insured, whereby the insurance may be payable either in one sum or instalments of thirty-six months or more. The bill bears the endorsement of the Secretary of the Treasury, who urges that all of the amendments shall be made at the earliest possible moment. In the report of the committee favorably referring the bill back to the House, is an interesting table as to what constitutes disability, with percentage. For example, epilepsy with fits occurring daily is 100 per cent. disability; fits occurring periodically at intervals of two to four days is 80 per cent.; from eleven to thirty days is 40 per cent., and at intervals exceeding thirty days, 20 per cent. The entire human body is thus classified as to percentage of disability of various parts.

Personal News of the Services

Edgar E. Hume, Lieut.-Col., M. C., U. S. Army, who is at present on duty as medical director of the Red Cross Mission to Serbia, has been given the Serbian Order of the White Eagle.——Charles E. MacDonald, Major, M. C., U. S. Army, who has been on duty in the Evacuation Post at Hoboken, has been ordered to duty as surgeon on the U. S. S. *Agamemnon* which has been turned over to the Army, and sailed for Brest, September 3.——Roger Brooke, Col., M. C., U. S. Army, was guest of honor at a luncheon given by the National Tuberculosis Association, August 26. He gave a comprehensive talk on the discoveries in the Army, as to the prevalence of pulmonary tuberculosis in the male population when the selective service law was put into operation, and the steps taken by the Army for the relief and cure of men so affected.——A life size oil painting of Major-Gen. Merritte W. Ireland, Surgeon-General, made by Lieut. Maurice L. Bower, Sanitary Corps, has been hung in the hall of the main stairway in the Army Medical Museum, Washington, D. C.

Awards of Distinguished Service Medal

The Distinguished Service Medal has been awarded by the commander in chief of the American Expeditionary Forces by order of the President, to the following officers of the American Expeditionary Forces for exceptional meritorious and distinguished service in France, Belgium and Russia.

WALTER AUGUSTE YVON DUBAIL, General, French Army. "Through his distinguished efforts one of the largest hospitals in Paris was made available for the American E. F."

EMILE CASTELLI, Colonel, French Army. "Advisor to the Medical Service of the American E. F., assisted in preparation of comprehensive hospitalization program."

EDOUARD CHARLES LAVAL, Lieut.-Col., French Army. "Member of the 4th Bureau, French General Headquarters, was closely associated with front-line medical tasks in the American E. F., and by co-operation, aided us in procuring hospital facilities."

PIERRE FELIX MORTIER, Major, French Army. "Medical member of the French Mission at General Headquarters, American E. F., later in medical section of Central Bureau of Franco-American relations, labored with conspicuous success in interests of the sick and wounded."

MICHAEL D. BERGER, Comdt., French Army. "While serving in D. T. M. A. was in personal charge of practically all movements of troops and hospital trains."

TINARDON, Commandant, French Army. "Member of the 4th Bureau, General Staff, French Army, rendered invaluable service to the American E. F., in connection with selection of suitable sites for depots and hospitals."

PAUL ALBERT JOSEPH PETIT, Commandant, French Army. "Attached to the Medical Section Central Bureau of Franco-American Relations, and later at G-4, General Headquarters, American E. F."

C. H. BURTCHAELL, Lieut.-Gen., British Army. "Director General of Medical Service, British E. F., provided adequate hospitalization and evacuation facilities for sick and wounded of American troops serving with British Armies."

Sir T. H. J. C. GOODWIN, Lieut.-Gen., British Army. "Surgeon-General. British Army, placed at disposal of American divisions serving with the British forces all evacuation and hospitalization facilities at his command."

JAMES L. BEVANS, Colonel, M. C., U. S. Army. "Served with distinction as chief surgeon of 3d Army Corps."

JAMES D. GLENNAN, M. C. "In charge of hospitalization division in office of chief surgeon, directed establishment, equipment and operation, as well as evacuation service of all American hospitals in France."

ELMER A. DEAN, M. C. "Came to France with base hospital unit, which he established, later organized and commanded first large hospital center at Bazoilles."

JOHN W. HANNER, M. C. "Commanding officer of Evacuation Hospital No. 1, displayed high professional attainments and loyal devotion to duty, subsequently chief surgeon, 4th Army Corps.

JAMES A. McCOY, M. C. "Served with conspicuous success as commanding officer, American Red Cross Hospital No. 111, at Jouy-sur-Morin and Chateau-Thierry, from June to August, 1918."

CHARLES R. REYNOLDS, M. C. "Division Surgeon, 77th Division, chief surgeon 6th Army Corps and later chief surgeon 2d Army, displayed qualities of leadership, high professional attainments and rare judgment."

ROBERT H. PIERSON, Col., M. C., U. S. Army. "For exceptionally meritorious and distinguished services. He served as division surgeon of the Fifth Division, from its organization until the close of hostilities, when he became chief surgeon of the Sixth Army Corps. Due to his sound judgment and efficient director of medical personnel, gas casualties in his division were reduced to a minimum. By his resourceful methods in combating disease he prevented the firing lines from being depleted at a critical time, maintaining a high standard of combat strength efficiency."

C. H. BURTCHAELL, Lieut. Gen., C. B., C. M. G. "For exceptionally meritorious and distinguished services. As director general of Medical Service, British Expeditionary Forces, he displayed untiring zeal, eminent talents, and broad experience in providing adequate hospitalization and evacuation facilities for the sick and wounded of the American Troops serving with the British Armies. His individual efforts counted largely in enabling the American Medical Service to function efficiently."

Distinguished Service Cross Awards

A posthumous award of the Distinguished Service Cross has been made in the case of Ralph E. Powers, Lieut.-Col., M. C., Akron, Ohio, attached 337th Ambulance Company, for service at Ust, Padenga, Russia, Jan. 20 to 23, 1919.

The Distinguished Service Cross has been awarded by the commanding general, American Expeditionary Forces, by direction of the President, to the following named officers:

FRED C. ALBRIGHT, Capt., M. C., U. S. Army, 353d Infantry, Garland, Kan. "For extraordinary heroism in action near Xammes, France, Sept. 13, 1918. When the battalion on the left of his own met with such heavy fire, as it was attempting to take its position, that it was forced to withdraw, leaving many wounded men behind, Captain Albright, with fearless disregard for his own safety, went to the adjoining area, and, under continued heavy artillery fire, cared for all the wounded who had been left there."

JOSEPH A. MENDELSON, Lieut., M. C., U. S. Army, Sanitary Detachment, 305th Infantry, Washington, D. C. "For extraordinary heroism in action near Ville-Savoy, France, Aug. 15-16, 1918. During a heavy enemy bombardment with gas and high-explosive shells, Lieutenant Mendelson worked for more than three hours, picking up wounded and gassed men and securing their evacuation, being forced to remove their gas masks in order to accomplish this work. Though he was almost exhausted from fatigue, he then proceeded to the aid station of another battalion and assisted in treating hundreds of men. Though he was himself suffering from the effects of gas, he refused to go to the hospital upon the completion of this work, as all the other medical officers had been evacuated."

ZODA D. LUMLEY, Capt. M. C., U. S. Army, 357th Infantry, Kampsville, Ill. "For extraordinary heroism in action in the St. Mihiel offensive, September 14, and near Baalon, France. Nov. 10-11, 1918. In the St. Mihiel offensive he showed marked personal courage advancing his first aid station with the front line. Near Baalon he maintained a dressing station far to the front, under terrific artillery and machine-gun fire, showing absolute indifference to personal safety that he might aid the men on the firing line during heavy gas bombardments."

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

NOTE.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel; Col., colonel.

ALABAMA

Birmingham — Beddow, W. H. (L.)
O'Connell, E. (L.)
Mobile—Rowe, M. (L.)
Wylam—Stewart, R. C. (C.)

ARIZONA

Phoenix—Sargent, W. H. (M.)

ARKANSAS

Bassett—Barksdale, O. (L.)
Litle Rock—Rose, W. D. (C.)

CALIFORNIA

Hayward—Harbeck, C. J. (M.)
Kerman—Arnold, D. E. (M.)
Los Angeles—Gillis, J. P. (L.)
Mueller, O. H. (L.)
Paulson, A. M. (L.)
Madeline—Smith, L. C. (M.)
Pacific Grove—Hart, F. R. (L.)
San Francisco—Brown, J. R. (C.)
Faber, H. K. (C.)
Spalding, J. B. (C.)
Vischi, G. J. J. (L.)

COLORADO

Denver—Hopkins, T. M. (C.)
Zaegel, R. L. (C.)
Trinidad—Scannell, E. J. (M.)

CONNECTICUT

New Haven—Groark, O. J. (L.)
Harten, J. A. (L.)
Lewis, D. M. (C.)
Van Duzen, R. E. (L.)
New London—Young, J. F. (L.)

DELAWARE

Wilmington—Mullin, J. H. (C.)

DISTRICT OF COLUMBIA

Washington—Allen, J. H. (C.)
Pedrick, F. B. (C.)

FLORIDA

Apalachicola—Ferris, F. F. (M.)
Nocatee—Whittle, C. C. (C.)
Palmetto—Harrison, M. (L.)
St. Augustine — Griffin, J. B. (L. C.)
Tampa—Carlton, L. F. (C.)

GEORGIA

Alpharetta—Brooke, G. C. (L.)
Atlanta—Copeloff, M. B. (C.)
Coldwater—Gaines, T. H. (C.)
Milner—Hunt, K. S. (L.)
Newnan—Farmer, M. H. (C.)
Pavo—Beggs, J. M. (C.)
Rome—Routledge, A. F. (L.)
Savannah—Usher, C. (L.)
Waynesboro—Morton, H. J. (M.)

ILLINOIS

Anna—Keller, D. H. (C.)
Ashley—Stevens, H. I. (M.)
Aurora—McCullough, J. D. (L.)
Bloomington — Gardner, W. H. (L. C.)
Bushnell—Duntley, G. S. (C.)
Chicago—Alt, G. L. (C.)
Appelle, C. G. (L.)
Ashworth, J. P. (M.)
Conroy, F. J. (C.)
Deacon, F. (M.)
Frisque, L. L. (M.)
Green, T. S. (C.)
H'Doubler, F. T. (C.)
Hedge, H. M. (M.)

Chicago—Hicks, C. J. Jr., (L.)
Holden, D. (L.)
Lang, H. W. (C.)
Lewin, P. (C.)
Lewis, K. (L.)
Loewe, G. M. (C.)
McMeel, J. E. (C.)
Moulton, E. V. (C.)
Nixon, S. D. (M.)
Peterson, H. M. (C.)
Pierzynski, T. S. (L.)
Rosenblum, P. (C.)
Skleba, L. F. (C.)
Smart, C. E. (L.)
Smith, R. A. (C.)
Staib, H. A. (C.)
Straus, D. (M.)
Syverson, B. C. (C.)
Webb, J. L. (L.)
West, L. C. (L.)
Wolf, S. (L.)
Concord—Magill, S. R. (C.)
Danville—Williamson, J. H. (C.)
East St. Louis—Short, L. B. (L.)
Freeport—Voigt, L. G. (C.)
Hoopeston — McCaughey, R. S. (M.)
Kankakee—Sullivan, F. J. (C.)
Latham—Pope, H. O. (C.)
Mount Greenwood — Murphy, R. C. (C.)
Newton—Fuson, L. H. (C.)
Paris—Shipman, F. E. (L.)
Peru—Smeltzer, C. E. (L.)
Quincy—Earel, J. W. (M.)
Springfield—Harmon, C. F. (C.)
Henkel, H. B. (C.)
Patton, C. L. (M.)
Sorgatz, G. F. (C.)
Streator—Higinbotham, C. J. (C.)
Waggoner—Ford, C. (C.)
Walnut Hill—Cruzen, R. E. (C.)
Waukegan—Schwartz, B. I. (C.)
Woodstock—Francis, H. M. (C.)

INDIANA

Albion—Green, J. W. (C.)
Bloomington—Culmer, W. N. (C.)
Evansville—Huber, J. G. (L.)
Fort Wayne—Benninghof, D. R. (M.)
Huntington—Dinnell, E. T. (M.)
Indianapolis—Miller, D. L. (C.)
Jamestown—Johnson, T. B. (C.)
Kentland—Van Kirk, G. H. (C.)
Lafayette—Schreiber, A. W. (C.)
North Liberty — Sprague, J. S. (C.)
Rockville—Stevens, C. I. (L.)
Sullivan—Higbee, P. (C.)
Terre Haute — Congleton, G. C. (L.)
Union City — Welbourn, M. A. (C.)

IOWA

Clinton—Martindale, E. L. (M.)
Davenport—Decker, H. M. (C.)
Kemmerer, T. W. (C.)
Fort Dodge—Schultz, A. A. (C.)
Iowa City—Campbell, T. R. (C.)
Nelson, L. A. (L.)
Stong, E. S. (C.)
Keokuk—Kinnaman, C. H. (C.)
Mason City—Murphy, F. G. (C.)
North English—Geiger, U. S. (C.)
Ottumwa—Hammer, L. A. (C.)
Salem—Stewart, E. A. (C.)
Sioux City—Nervig, I. F. (C.)
Whiting—Harman, C. (C.)

KANSAS

Atchison—Pearl, F. A. (C.)
Hugoton—Day, B. H. (M.)
Leavenworth—Brown, C. E. (L.)
Saline—Padfield, E. G. (L.)
Topeka—Dawson, A. M. (C.)

KENTUCKY

Cynthiana—Carr, H. (C.)
Heidelberg—Treadway, L. (L.)
Jeffersontown—Dravo, E. L. (L.)
Lexington—Herring, H. G. (L.)
Louisville—Robertson, G. A. (C.)

LOUISIANA

Glenmora—Reid, W. E. (L.)
Lakeland—Lorio, L. F. (L.)
New Orleans—Buffington, W. R. (C.)
Dauterive, H. J. (C.)
Faget, E. B. (C.)
King, E. L. (C.)
Martin, T. W. (M.)
Perkins, R. T. (L.)
Schmidt, P. C. (L.)
Tillery, B. (C.)

MAINE

Bangor—Willey, W. B. (L.)
Lewistown—Pelletier, J. J. (C.)
Monson—Sampson, H. W. (C.)
Portland—Milliken, H. E. (M.)

MARYLAND

Baltimore—Jaffe, B. M. (L.)
Linhardt, O. V. (L.)
Looper, E. A. (C.)
Luckett, C. L. (L.)
Reber, R. L. (L.)
Darlington — Snodgrass, F. P. (L.)
Easton—Stevens, A. M. (C.)
Frostburg—Michel, W. (C.)
Indian Head — Simmons, M. J. (M.)
Kitzmiller—Miller, E. J. C. (C.)
Mount Savage—Murray, F. A. C. (C.)
Preston—Downes, J. R. (L.)
Towson—Jenifer, D. T. (L.)

MASSACHUSETTS

Boston—Begg, A. S. (L. C.)
Hall, F. C. (L.)
Wickham, T. W. (C.)
Brookline—Carroll, T. F. (C.)
Chelsea—Wilson, C. H. (L.)
Fall River—Doyle, J. H. (M.)
Lyon, W. S. (L.)
Gardner—Benoit, S. J. (C.)
Holyoke—Farr, I. H. (L.)
Marion—Hopkins, R. H. (L.)
Pittsfield—Schneider, H. A. (C.)
Sullivan, J. A. (M.)
Somerville—Allison, C. E. (L.)
Worcester—Bowers, G. F. H. (L.)

MICHIGAN

Ann Arbor—O'Leary, J. J. (L.)
Athens—Van Camp, E. (M.)
Bellevue—McLennan, H. E. (C.)
Cassopolis—Kelsey, J. H. (C.)
Cheboygan—Sahs, A. J. (L.)
Coleman—High, C. V. (C.)
Detroit—Albrecht, H. F. (L.)
Clippert, J. C. (C.)
Currie, E. M. (C.)
Gonne, W. S. (L.)
Gostanian, J. (L.)
Hooper, V. J. (C.)
Mancuso, V. S. (C.)
McCormick, C. W. (L.)
McDonald, A. W. (C.)
McEwan, J. W. (M.)
Ormond, J. K. (C.)
Flint—Bahlman, G. H. (C.)
Hamtramck — Carmichael, R. H. (C.)
Kalamazoo—Crum, L. J. (C.)
Saginaw—McKinney, A. R. (C.)
St. Johns—Scott, W. A. (C.)
Watersmeet—Curry, G. J. (L.)
Whitehall—Hercik, W. L. (C.)
White Pine—Dinsmore, A. J. (L.)

MINNESOTA

Benson—Van Slyke, L. H. (L.)
Duluth—Holm, G. A. (C.)
Hutchinson—Hanson, H. V. (C.)
Northfield—Babcock, F. M. (L.)
St. Paul—Maloney, T. J. (C.)
Mortensen, N. G. (C.)
Taylor, K. (L. C.)

MISSISSIPPI

Fayette—McNair, J. C. (M.)
Greenville—Archer, J. G. (C.)
Indianola—Newell, S. D. (C.)
Meridian—Douglas, G. F. (C.)
Shubuta—McDevitt, J. A. (C.)

MISSOURI

Blackburn—James, L. S. (L.)
Kansas City—Dail, O. C. (C.)
Monahan, E. P. (L.)
Kirkwood—Murrell, R. E. (L.)
Martinsville — Wessling, L. A. (L.)
Mexico—Blanks, C. L. (C.)
Reger—Tunnell, J. D. (L.)
Richmond—Higdon, E. F. (L.)
St. Louis—Blakemore, J. M. (C.)
Donahue, J. C. (L.)
Garstang, D. B. (C.)
Gomien, S. (L.)
Haley, R. R. (L.)
Harbour, S. C. (C.)
Kirchner, W. C. G. (M.)
Leighton, W. E. (M.)
Munson, C. L. (M.)
Myerdick, A. H. (C.)
Saenger, N. (C.)
Scheff, A. L. (L.)
Urbanowski, L. V. (L.)

MONTANA

Miles City—Arnold, J. E. (L.)
Missoula—Anderson, E. C. (C.)

NEBRASKA

Falls City—Miner, H. C. (C.)
Loup City—Longacre, O. E. (M.)
Omaha—Pinto, A. S. (L. C.)
Potter—Hynes, W. P. (L.)
Wahoo—Way, C. W. (L.)

NEW HAMPSHIRE

Alstead—Stillings, L. C. (C.)

NEW JERSEY

Bloomfield—Morgan, B. (C.)
Poonton—Peck, E. N. (C.)
Elizabeth—Stein, M. H. (L.)
Hoboken—Ginsberg, G. (L.)
Jersey City—Lettiere, J. J. (C.)
Long Branch—Tilton, W. S. (C.)
Newark—Gilbert, H. J. (L.)
Orton, H. B. (C.)
Satterer, W. (C.)
Sutphen, C. E. (M.)
Weber, F. C. (L.)
Passaic—Udinsky, H. J. (L.)
Pemberton—Hollingshead, L. B. (M.)
Perth Amboy—Slobodian, B. F. (L.)
Raritan—Seaman, B. F. (C.)
Spring Lake — Leighton, R. L. (C.)
Trenton—McCullough, J. H. (M.)
Potts, M. L. (L. C.)

NEW YORK

Albany—Butler, L. J. (C.)
Cote, L. C. (C.)
Shults, B. G. (C.)
Brooklyn—Delatour, B. J. (L.)
Fagone, P. G. (C.)
Hamilton, C. E. (C.)
Kranzer, L. L. (L.)
McClintock, T. H. (M.)
McElvare, G. G. (C.)
Raphael, J. (C.)
Rosenfield, J. (C.)
Scher, M. (L.)
Weissberg, M. (L.)
Buffalo—Long, C. E. (M.)
Palmer, F. W. (L.)
Weed, H. M. (C.)
Cincinnatus—Grant, J. R. (C.)
Cohoes—Doody, R. P. (C.)
Guilderland Center—Hurst, F. H. (M.)
New Rochelle—Fitzgerald, P. B. (C.)
New York—Baker, V. C. (L.)
Bowerman, W. G. (C.)
Buchenholz, S. A. (C.)
Calvelli, E. (L.)
Campbell, E. A. (M.)
Campbell, J. A. (L.)
Cole, C. S. (M.)
Fern, S. S. (L.)
Fox, H. (L. C.)
Grosner, J. (C.)
Knipe, W. H. W. (C.)
Lavelle, T. E. (C.)
Lee, J. C. (L.)
Lynch, D. B. (C.)
May, W. R. (M.)
McCrossin, W. J. (C.)
McGovern, J. F., Jr. (L.)
Morse, S. (L.)
Nelson, R. S. (M.)
Philips, C. (M.)
Sisskind, S. G. (L.)
Sprowl, R. J. (M.)
St. Lawrence, W. P. (M.)
Stenhenson, J. W. (M.)
Thomas, W. C. (L.)
Toshack, C. E. (L.)
Uran, W. W. (C.)
Volk, M. L. (L.)
Warren, M. (M.)
Winarsky, M. (L.)
Winternitz, D. H. (C.)
Zabriskie, E. G. (L. C.)
New York Mills—Mitchell, H. M. (C.)
Olean—Greenleaf, C. A. (C.)
Philmont—Knapp, J. C. (L.)
Plandome—Sanborn, F. R. (M.)
Plattsburg—Rowlson, I. A. (C.)
Port Chester—White, J. F. (M.)
Poughkeepsie—Harrington, J. T. (M.)
Plattsburg—Bond, F. B. (C.)
Rochester—Hurley, J. E. (M.)
Smith, A. L. (C.)
Wronker, H. (L.)
Staten Island—Soldini, E. C. (L.)
Troy—Loewenstein, A. M. (C.)
Watertown—Hawkins, N. L. (C.)
Weedsport—Goodwin, C. E. (C.)
White Plains — Ramsdell, E. G. (M.)

NORTH CAROLINA

Greensboro—Pate, F. J. (C.)
Rocky Mount—Clark, H. E. (L.)
Wallace—Robinson, J. D. (C.)

NORTH DAKOTA

Devils Lake—Moeller, T. O. E. (C.)
Regan—Reedy, P. G. (M.)
Tioga—Simon, O. B. (L.)

OHIO

Athens—Hooper, E. L. (M.)
Bellaire—Reed, C. L. (C.)
Burton—Dayton, N. A. (C.)
Canton—Peters, C. M. (M.)
Cincinnati—Dryer, C. S. (M.)
Mayfield, A. L. (L.)
Pirrung, J. E. (M.)
Cleveland—Birge, R. H. (M.)
Burhans, C. W. (C.)
Ibershoff, A. E. (C.)
Stone, A. A. (L.)
Wilkins, G. R. (C.)
Columbus—Adams, R. O. (C.)
Hodges, W. H. (L.)
Oelgoetz, A. W. (L.)
East Palestine—Atchison, J. S. (L.)
Findlay—Balsley, A. W. (L.)
Watson, C. (C.)
Hamilton—Millikin, M. (C.)
Mansfield—Mecklem, W. P. (L.)
McConnellsville—Hill, J. F. (L.)
Milford Center — Boylan, J. D. (L.)
Toledo—Hettler, G. A. (M.)
Rhodes, F. L. (C.)
Washington C. H.—Hodson, H. O. (C.)
Woodville—Trumbull, H. N. (C.)
Youngstown—Morrall, R. R. (M.)
Wolferth, C. C. (M.)

OKLAHOMA

Alva—Hale, A. E. (C.)
Billings—Cannon, J. M. (L.)
Cashion—Bost, J. R. (L.)
Oklahoma City — Paulus, D. D. (C.)
Reed, H. L. (C.)
Westfall, L. M. (C.)
Okmulgee—Westover, R. L. (C.)

PENNSYLVANIA

Altoona—Galbraith, J. H. (C.)
Handwork, A. J. (M.)
Ambler—Shelly, I. H. (M.)
Bloomsburg — MacDonald, J. T. (M.)
Bristol—LeCompte, W. C. (L. C.)
Carnegie—Magee, J. E. (L.)
Chester—Crist, J. O. (C.)
Pilgram, R. E. (C.)
Crafton—Morgan, J. S. (C.)
Dunbar—King, F. J. (C.)
Hampton—Swab, R. D. (L.)
Johnstown—Braude, B. A. (C.)
Lewistown—McCoy, C. M. (L.)
Rupp, F. A. (M.)
Mapleton Depot—Campbell, M. D. (L.)
McKeesport — Bachman, M. H. (C.)
Firestone, S., Jr. (L.)
Steele, T. A. (C.)
Monessen—Duvall, F. C. (C.)
Mount Oliver—Vates, C. W. (M.)
Oil City—Bruner, P. L. (L.)
Philadelphia — Aronson, J. D. (M.)
Bloom, G. H. (L.)
Brinton, W. (M.)
Bromer, R. S. (L. C.)
Brooks, M. (L. C.)
Colcher, A. E. (L.)
Coyle, W. V. (C.)
Dare, A. (L. C.)
Goldstein, J. S. (L.)
Hebsacker, W. F. (C.)
Lucke, B. H. E. W. (L.)
Merrill, W. J. (C.)
Ostheimer, A. J. (L. C.)
Park, J. F. (M.)
Schwartz, G. J. (M.)
Stroud, W. D. (L.)
Thompson, W. L. (L.)
Williamson, E. G. (C.)
Pittsburgh—Beddell, S. A. (L.)
Evans, R. M. (C.)
Fitzgerald, L. H. (L.)
Fulton, B. F. (L.)
Harrison, F. H. (C.)
Lipscomb, I. M. (L.)
Lyon, S. E. (C.)
Nevling, A. B. (L.)
Scott, Z. R. (L.)
Vogan, G. S. (L.)
Wignall, H. L. W. (C.)
Polk—Reed, N. S. (C.)
Ramsaytown—Dick, W. (L.)
Reading—Bertolet, W. M. (L.)
Gerhardt, P. H. (C.)
Rexmont—Boger, J. D. (C.)
Scottdale—Griffiths, D. E. (C.)
Scranton—Allen, J. V., Jr. (C.)
St. Clair—Jones, E. T. (L.)
Tyrone—Nason, J. B. (C.)
Washington—Corwin, J. H. (L.)
Waterman—Camche, L. J. (L.)
Wind Gap—Beck, F. A. (C.)

RHODE ISLAND
Providence—Walsh, J. G. (L.)

SOUTH CAROLINA
Charleston—Johnson, W. H. (C.)
Columbia—Benet, G. (C.)
Ward, J. L. (C.)
Easley—Pepper, J. C. (L.)
Laurens—Fuller, L. S., Jr. (L.)
Travellers Rest—Benson, C. P. (C.)
York—Glenn, J. J. (L.)

SOUTH DAKOTA
Rapid City—Ince, H. J. (C.)

TENNESSEE
Bradyville—Adams, J. F. (C.)
Harriman—Neergaard, F. A. (C.)
Lexington—Goff, J. F. (L.)
Nashville—Crutchfield, C. R. (L.)
Welker, L. E. (L.)

TEXAS
Amarillo — Fitzsimmons, C. E. (C.)
Austin—Boerner, M. H. (C.)
Bonham—Foster, E. H. (C.)
Columbus—Youens, W. G. (C.)
Corpus Christi — Bonelli, V. E. (M.)
Fort Worth — Duringer, W. C. (C.)
Francis, F. W. (L.)
Kibbie, K. V. (C.)
Lubbock—Clayton, C. F. (C.)
Menard—Miller, G. B. (C.)
San Antonio—Clark, A. F. (C.)
Tyler—Livingston, J. J. (L.)

UTAH
Salt Lake City — Jansen, F. I. (M.)

VIRGINIA
Abingdon—Motley, J. C. (M.)
City Point—Selinger, M. A. (C.)
Claremont—Wall, H. (C.)
Lacey Springs — Graves, A. W. (M.)
New London—Travis, J. R. (C.)
Roanoke—Hicks, E. M., Jr. (L.)

WASHINGTON
Bremerton—Schutt, R. L. (L.)
Deer Park—Slater, H. H. (C.)
North Yakima—McClure, W. L. (L. C.)
Seattle—Monnich, W. A. (L.)
Snohomish—Durrent, J. A. (C.)
Sumner—Wick, W. W. (L.)

WEST VIRGINIA
Charleston—Davis, E. (M.)
Holden—Chapman, O. P. (L.)
New Martinsville—Schmied, J. D. (C.)
Sistersville—Thaw, R. F. (L.)
Wheeling—Gillespy, T. (L.)

WISCONSIN
Brodhead—Looze, A. J. (L.)
Franksville—Fritchen, A. F. (C.)
Milwaukee—Elias, F. J. (L.)
Gilchrist, R. T. (M.)
Grotjan, W. F. (L.)
Linkman, E. G. (L.)
McCabe, H. (L.)
Nashotah—Fleming, W. J. (C.)
Plain—Fowler, P. H. (C.)
Plainfield—Borden, F. R. (M.)
Princeton—Drill, A. A. (L.)
Sheboygan — Sonnenburg, C. N. (L.)
South Milwaukee—Evans, E. P. (C.)
Wauwatosa—Nugent, A. C. (L.)

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CALIFORNIA
San Diego—Little, T. C.

CONNECTICUT
Stamford—Wood, C. L.

DELAWARE
Bacons—Bacon, W. A.

FLORIDA
Jacksonville—Field, T. S.

GEORGIA
Atlanta—Clements, M.
Harrisburg—Adams, F. E.

ILLINOIS
Chicago—Walker, S.

INDIANA
LaGrange—Short, J. T.
LaPorte—Marlay, M. G.

MASSACHUSETTS
Chelsea—Sheppard, G. A.

MINNESOTA
Ponsford—Ballou, J. L.

MISSOURI
Monett—Greever, B. L.

NEBRASKA
Omaha—Gallaghan, A. J.
Sutton—Figi, F. A.

NEVADA
Reno—Stadtherr, A. L.

NEW JERSEY
Plainfield—Ganzmer, G. V.

NEW YORK
Buffalo—Eckel, G. J.
New York—Leshin, H. R.

PENNSYLVANIA
Morton—Tinney, A. G.
Philadelphia—Trowbridge, S. E.

SOUTH CAROLINA
Charleston—Wieters, J. C.

TENNESSEE
Memphis—Bertram, J. C.

TEXAS
Sabinal—Shudenmagen, W. J.

VIRGINIA
Richmond—Childress, C. H.

WASHINGTON
Seattle—Shiley, J. R.

WISCONSIN
Milwaukee—Angell, E. D.

Mortality in Portuguese Army.—Dr. Antonio Barradas reported at the medical congress held recently at Madrid that the Portuguese army on duty in France during the war formed a total of 75,000 men. Of these 75,000, 2,000 died, 1,460 in battle, 340 of disease and the rest are unaccounted for. The Portuguese troops in East Africa lost 6,000 men by disease and only 1,000 in battle. The wounded in France numbered 6,460, of whom 1,460 died. Those disabled more or less permanently amounted to 7,000, 45 per cent. of the disabilities being due to tuberculosis and 340 dying of this disease. The vaccination against smallpox and typhoid resulted in controlling these diseases so that there was no smallpox among the troops and only five deaths from typhoid. The Portuguese physicians did their duty in the war, 300 out of 3,000 in the whole country serving in France.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

DISTRICT OF COLUMBIA

Personal.—Dr. Frank Abbott, medical inspector of the District health department, has been appointed superintendent of the Washington Asylum Hospital.

ILLINOIS

Midwife Fined.—Mrs. Anna Tutlin, Rockford, who is said to have been placed under bonds recently, following the illness of a young woman to whom she is said to have given an abortifacient, is reported to have been fined $50 and costs, September 4.

Personal.—Dr. Charles F. Lynch, Chicago, has been appointed health officer of Aberdeen, S. D.——Dr. William R. Marshall, Clinton, has been elected president of the Black County Anti-Tuberculosis Association.——Lieut.-Col. George de Tarnowsky has returned to Chicago after an extended service abroad with the Army in the war zone and with the American Red Cross in Poland and southeastern Europe.

Treatment of Socially Unfit.—The Chicago Municipal Morals Commission, August 30, inaugurated a movement to rid the city of vice and venereal disease. The plan provides for the segregation of all infected persons and a fund of $120,000 appropriated by the state and city government has been made available for carrying on the work. It is proposed to organize a special vice squad, and all suspects will be sent to the Iroquois Memorial Hospital for examination, and if found affected will be held until cured. The president of the county commissioners of Cook County has been asked to set aside a large ward in the Cook County Hospital for the treatment of these cases.

Illegal Practitioners Fined.—The Illinois Department of Registration and Education arrested Mrs. Lulu C. Parmenter of Galesburg and Stefan W. Sobolewski of 1111 North Marshfield Avenue, Chicago, for treating human ailments without a license. They are said to have been fined, respectively, $25 and costs and $50 and costs.——It is reported that D. H. Prince of Love's Park was arrested recently by the Illinois Department of Registration and Education for practicing medicine without a license and was fined $100 and costs. Prince was charged with diagnosing an ailment of a young woman in Rockford as goiter and was said to be receiving for medicine a large part of the money contributed by the charitable workers of Rockford for the support of the family of the young woman. At the trial Prince was compelled to return all the money he had received for his so-called professional treatment.

INDIANA

Personal.—Dr. Fred W. Terflinger has resigned as superintendent of the Northern Hospital for the Insane, Logansport, and was succeeded by Dr. Paul E. Bowers of Whittier, Calif., September 10.

Prisoners Treated by Public Health Service.—All prisoners in the Marion County Jail, Indianapolis, will hereafter be examined for venereal disease and treated for the same by the United States Public Health Service clinic.

School Inspectors Appointed.—The Indianapolis Board of Health has appointed the following physicians as inspectors of public schools: Carrie J. Reid, Martha J. Smith, George J. Martz, James M. Smith, Joseph L. Conley, Albert W. Miller, Colin V. Dunbar, Charles F. Bayer, William Wise and Clarence N. Harris.

LOUISIANA

Tuberculosis Hospital Not Health Menace.—In a suit brought by Le Bourgeois et al. to enjoin the city of New Orleans from establishing and maintaining a tuberculosis hospital in the city, one of the plaintiffs alleged that the hospital would endanger the health of those living in the vicinity. The supreme court, however, does not take this view. In its decision it states ". . . If it were proved with certainty that this hospital would endanger the health of this

plaintiff or his family, perhaps a case might be presented for judicial interference. But the very opposite is conclusively shown by the evidence, which is all one way to the effect that a well kept tuberculosis hospital is not a menace to the health of the people living in its vicinity and the presumption is that this hospital will be well kept. . . . Our conclusion is that the suit is groundless in so far as it is sought to be founded on the apprehended injurious character of the proposed hospital."

MARYLAND

Personal.—Dr. John F. Doucher, Baltimore, expects to sail, October 2, from Vancouver for Asia, where he will remain for six months as a member of the commission on Christian education in the missionary field.——Dr. Eli Marshall, Jr., Baltimore, has been made professor of pharmacology in Washington University Medical School, St. Louis.——Dr. Eugene H. Hayward, Baltimore, who went to France early in the war with the University of Maryland Base Hospital Unit and served also with the Army of Occupation in Germany as major, has returned to his home in Baltimore.——John W. Wheeler, who has been in charge of the eye department at U. S. Army General Hospital No. 2, Fort McHenry, Baltimore, has received his discharge and has returned to his home in New York City.

Clinic in Need of Funds.—The government social clinic at Mercy Hospital, Baltimore, established in October of last year, will have to cease functioning if funds to support it do not come from some source. The United States government, through the public health service, is ready to repeat last year's appropriation of $14,200, provided the state furnishes an equal sum, making a total of $28,400 to fight social diseases in Maryland for one year. Dr. Anton G. Rytina, Baltimore, is director of the clinic and with a staff of twelve physicians, a secretary, a woman social service worker and a nurse, he now treats more than 500 men and women in this clinic. He works under the auspices of the state board of health and the United States Public Health Service. Dr. Rytina believes that the state legislature would not hesitate to appropriate the necessary $14,200 to match the national government's appropriation for the state, but declares the fight against these diseases cannot wait until next January, when the legislature convenes. The money is needed at once.

MAINE

Personal.—Dr. Leverett D. Bristol, Augusta, state health commissioner, has been elected dean of the College of Medicine of the University of Tennessee, Memphis, and will assume his duties this month.——Dr. Edwin D. Jaques, South Berwick, has been nominated as medical examiner (coroner) for York County.

MASSACHUSETTS

Personal.—Dr. Leon A. Alley, Rutland, has been made acting superintendent of the State Sanatorium, Rutland, succeeding Dr. Ernest B. Emerson, resigned in order to accept a position in a hospital in Brockton, Mass.

Lowell and Cutter Lectures.—Harvard University announces that Dr. Thomas M. Legge, chief medical inspector of factories in Great Britain, will give a course of Lowell lectures and the Cutter lectures in preventive medicine during the coming year under the auspices of the School of Public Health of Harvard University and the Massachusetts Institute of Technology, and the division of industrial hygiene. Dr. Legge will lecture in Boston, November 18, and ensuing dates on the following subjects:

Twenty years' Experience of the Notification of Industrial Disease; Twelve Years' Experience of Workman's Compensation Act and Industrial Diseases; Medical Supervision in Factories; Industrial Poisons and Their Prevention; Anthrax; Fumes and Gases; Industrial Fatigue; Industry as a Subject for Art and Manufacture under the Medieval Trade Guilds.

MICHIGAN

New Officers.—At the annual meeting of the Wayne County Medical Society held in Detroit, Deorge E. McKean was elected president; Dr. Raymond C. Andries, vice president; Dr. James H. Dempster, secretary, and Dr. William H. Morley, treasurer, all of Detroit.

Government Selects Detroit Sanatorium.—The Detroit Tuberculosis Sanatorium has been selected by the United States Public Health Service as the institution for the treatment of Michigan soldiers and sailors who are suffering from tuberculosis. The institution is at present located at Twelfth Street and Tuxedo Avenue and has accommodation for 150 patients.

New Sanatorium Superintendent.—Dr. Albert H. Garvin, for fourteen years superintendent of the New York State Sanatorium for Incipient Tuberculosis, Ray Brook, and who served for two years during the war on the Red Cross Commission sent to France, has been appointed superintendent of the new municipal tuberculosis sanatorium, which the Detroit Department of Health is constructing at a cost of $1,000,000 on a site of 750 acres located near the village of Northville, 25 miles west of Detroit.

NEW MEXICO

Health Offices Moved.—The offices of the New Mexico Public Health Association, formerly located in the Chamber of Commerce Building, Albuquerque, have been moved to the Wright Building, in the same city. The office will be in charge of the new secretary, Clinton B. Anderson.

Personal.—James P. Kennedy, medical missionary of the Presbyterian board, and in charge of the Presbyterian Navajo Mission Hospital for eleven years, has severed his connection with that work and will enter private practice in New Mexico or Colorado.

NEW YORK

Medical School to Continue.—The Fordham University School of Medicine is to be continued during the next two years in order that medical students previously enrolled in this school may complete their medical training and obtain their degrees. During 1919-1920 subjects included in the junior and senior years will be taught, but during 1920-1921 only the subjects of the senior year will be given.

Educational Campaign in Housing and Industry.—The state reconstruction commission is undertaking an educational propaganda, through the use of motion pictures, by means of which various matters pertaining to housing, health and industry will be explained in picture form. The pictures will be exhibited free in parks and public squares in every section of the state within the next two months and will deal with such problems as the food question, the control of the milk supply, public health, housing, and the development of transportation in rural communities.

Postgraduate Course for Public Health Nurses.—A postgraduate course for public health nursing is to be given in Buffalo for sixteen weeks, beginning September 29, under the auspices of the Buffalo University, Buffalo Chapter of the American Red Cross, department of health, District Nursing Association and department of hospitals and dispensaries. The classes will be limited to thirty and applicants must be registered in New York state or states having equivalent standard. Applications should be made to the University of Buffalo. The expense of the course will be $25.

New York City

Leprosy.—A man, 23 years of age, was found in Manhattan, August 22, suffering with leprosy. He came to the United States from Porto Rico, nine months ago, had first resided in Georgia, and for the last six weeks in New York City.

Men Arrested and Drugs Seized.—Internal Revenue agents, September 4, arrested five men said to belong to a "dope ring," and seized granulated opium and cocain, valued at $50,000. The prisoners were charged with violating the Harrison Narcotic Law and two of them were held in $20,000 bail, another for $7,500 and two for $2,500. The latter two furnished security and were released, while the others were committed pending hearing.

Faculty Changes.—The following faculty changes in the Long Island College Hospital, Brooklyn, are announced: Dr. Emil Goetsch, full-time professor of surgery in Johns Hopkins University, Baltimore, and associate surgeon in Johns Hopkins Hospital, has been appointed professor of surgery at the Long Island College Hospital and head of the surgical department throughout the college, hospital and dispensary. Drs. William B. Brinsmade, William F. Campbell, both of Brooklyn, have been appointed clinical professors of surgery in Long Island College Hospital.

NORTH CAROLINA

Hospital Notes.—A charter has been issued to the Caroline General Hospital, Wilson, with an authorized capital of $50,000. The incorporators are Drs. Kinchin C. Moore, Henry B. Best, Paul P. Lane and Ernest L. Strickland, all of

Wilson. The Bennett Barnes residence has been purchased and on this site will be erected a four-story building which will accommodate forty patients.

Personal.—Dr. Frank M. Register, for the past two years whole-time county health officer of Northampton County, and for fourteen years previously physician in chief to the North Carolina State Farm Prison, has been appointed state epidemiologist, and assumed the duties of the office at Raleigh, September 1.——Dr. Auley McR. Crouch, late state epidemiologist, becomes health officer of New Hanover County with headquarters at Wilmington.

Whole-Time Health Officers.—North Carolina now has fourteen whole-time county health officers, the three recent additions being Halifax, Robeson and Surry counties, which have voted appropriations sufficient to secure the cooperative financial assistance of the state board appropriations. Dr. Wilbur A. McPhaul, Lumberton, recently doing admirable public health work in Robeson County, leaves for work with the Alabama State Board of Health, his place being filled by Dr. Eugene R. Hardin, Clinton, late health officer of Sampson County. Dr. Paul C. Carter of Wake County assumes the duties of the post in Halifax, while the new health officer of Surry County is to be Dr. Lester L. Williams, who for the past year has been engaged in inspection work for the state board of health.

OHIO

Violation of Narcotic Law.—For the second time Dr. John B. Flack, Cincinnati, is said to have been put under arrest on the charge of violating the Harrison Narcotic Law. He is reported to have pleaded guilty and to have been released on a bond of $1,000.

Personal.—Atlee R. Omstead, Major, M. C., U. S. Army, Millersburg, who spent twenty months overseas in the Medical Corps of the British Expeditionary Forces in France and Belgium, has returned and has located in Canton.——Dr. Frank W. Stevenson has succeeded Dr. Lauren N. Lindenberger as receiving physician of the Cincinnati General Hospital.

OREGON

Clinic Organized.—The Baker Clinic was incorporated, August 2, with a capital stock of $50,000 and with the expressed purpose of conducting a general medical practice and surgery. The headquarters of the clinic will be in Baker, and Drs. Clarence E. Barton, Carl G. Patterson and Mr. James H. Nichols are the incorporators.

Personal.—Dr. Spiro F. Sargentich, Portland, who started for Serbia four days after war was declared and for more than two years conducted a campaign against typhus fever and later served two years and a half with the American Expeditionary Forces, has returned to his home.——Earl V. Morrow, Lieut.-Col., M. C., U. S. Army, Portland, returned home, August 4, after four years of service, the earlier part of which he spent as chief surgeon of the American Red Cross in Belgium, afterward he was attached to the Twenty-Ninth British Division and later was commanding officer of the 105th Sanitary Train, A. E. F., and finally chief surgeon of the Third Division.

PENNSYLVANIA

Personal.—Dr. William Estes, South Bethlehem, has been appointed by the state commissioner of health, chief of the genito-urinary dispensary at South Bethlehem.

County Court Powerless.—In the mandamus suit brought by Dr. John C. Bateson, Scranton, against the Bureau of Medical Education and Licensure, of the department of education, for reinstatement as a practitioner after his license had been revoked, the attorney-general has filed an answer to the effect that the Dauphin County Court has no jurisdiction in the matter.

Medical Inspection in Hazelton Schools.—For the first time in the history of Hazelton the city schools which opened for the current term, September 4, with more than 6,000 pupils have the services of a nurse. Hazelton physicians will attend to the medical inspection gratis, each doctor looking after the children of his own practice. The only condition the physicians exacted of the school board was that a nurse be supplied, so Miss Sue Tinner, a returned Red Cross hospital worker, was recently appointed to this post.

Philadelphia

Personal.—Dr. Edwin S. Cooke has been appointed by the state department of health, first assistant of the state genito-urinary dispensary.——Dr. Melvin M. Franklin has been made associate professor of orthopedic surgery in the graduate school of the University of Pennsylvania.

Municipal Hospital Planned for Byberry.—Members of hospital and welfare organizations of the city are planning an educational campaign to arouse public opinion in favor of establishing a municipal tuberculosis hospital on the Byberry farms. Representatives from the bureau of public health and charities, the medical department of the municipal court, home service department of Red Cross, Pennsylvania Society for the Study and Prevention of Tuberculosis, federal board of vocational training, society for organizing charity, Phipps Institute of the University of Pennsylvania, tuberculosis department, Jefferson Hospital, and the state department of health, division of dispensaries, met, September 5, at the state dispensary, 1724 Cherry Street, to discuss plans for furthering the movement.

Joint Management for Women's College and Hospital.—Members of the executive boards of the Women's Medical College and the Women's Hospital, independent institutions, plan a joint meeting to decide on a method for the operation of the two institutions under a joint management. Dr. Alice M. Seabrook, medical superintendent of the hospital, said a union or merger of the two institutions is considered impossible by the officials of both, for although founded by graduates of the medical school, many hospital endowments specify that only women patients shall be admitted, whereas the hospital connected with the college receives patients of both sexes. Another factor in keeping the Women's Hospital and College Hospital separate is that while visiting physicians of the Women's Hospital are all women, physicians of both sexes are on the faculty and staff of the Women's Medical College and the College Hospital.

RHODE ISLAND

Licenses Revoked.—An official report states that at its regular meeting, held August 14, the Rhode Island State Board of Health revoked the licenses of Dr. Albert O. Robbins, Thornton, and Dr. Charles Dansereau, Woonsocket, on the ground that they had recently been convicted of performing criminal abortions.——At a meeting, held July 17, the state board of health of Rhode Island revoked the license of Dr. William Llewellyn Owen on the ground that he was found guilty of violating the Harrison Narcotic Law in the state of New York and was convicted by federal authorities. Dr. Owen's licenses to practice medicine have already been revoked in New York, Pennsylvania, California and Illinois. Dr. Owen was sentenced to serve a term at the federal penitentiary at Atlanta, Ga.

CANADA

Hospital Notes.—The Ontario Military Hospital at Orpington, Kent, England, closed this week and the last 400 patients sailed for Canada. The hospital buildings will probably be sold to the British pension authorities as a home for disabled pensioners; or the London County Council may purchase it as a home for city children in need of fresh-air treatment.

GENERAL

Army Pharmacists Organize.—A World War Veterans Section of the American Pharmaceutical Association was organized at the annual meeting of that association, August 26.

National Colored Medical Society Meeting.—The twenty-first annual meeting of the National Medical Association, an organization of negro physicians, dentists and pharmacists, was held in Newark, N. J., August 26 to 29. Atlanta, Ga., was selected as the next place of meeting, and Dr. John P. Turner, Philadelphia, was elected president.

Bequests and Donations.—The following bequests and donations have recently been announced:

Mount Sinai Hospital, Charity Organization Society, St. John's Guild, and Hebrew Orphan Asylum, New York City, each $1,000 by the will of Emile Roch.

Training School for Feeble-Minded Children, Elwyn, Pa., $10,000 by the will of John F. Parsons.

A bequest for the maintenance of three beds in the Methodist and Pennsylvania hospitals, Philadelphia, by the will of John B. Parsons.

Lenox Hill Hospital, New York City, $6,000 by the will of Mrs. Anna Diehl.

Railway Surgeons to Meet.—The twenty-eighth annual session of the New York and New England Association of Railway Surgeons will be held at the Hotel McAlpin, New York City, October 20, under the presidency of Dr. James S. Hill, Bellows Falls, Vt. A symposium on "The Modern

Treatment of Infected Wounds" will be presented and railway surgeons, attorneys, officials and physicians are invited to be present.

New Tri-State District Officers.—At the annual meeting of the Tri-State District Medical Society of Illinois, Iowa and Wisconsin, held in Rockford, Ill., September 1 to 4, the following officers were elected: president, Dr. Walter B. Helm, Rockford, Ill.; vice presidents, Drs. Elmer B. Cooley, Danville, for Illinois, George V. I. Brown, Milwaukee, for Wisconsin, and John E. O'Keefe, Waterloo, for Iowa, and business manager, Dr. William B. Peck, Freeport, Ill. Waterloo, Iowa, was selected as the next place of meeting.

The Osler Memorial Volume.—A number of inquiries have been received relative to the Osler Memorial Volume. We are informed that while the original intention was a one-volume book of 500 or 600 pages, so many contributions were received that the committee found it necessary to make two volumes, increasing the number of pages to between 1,300 and 1,400. This necessitated more time for publication. It is expected now that the volumes will be ready for distribution about the end of this month. Those who desire these books and who have not yet ordered may send their subscriptions to Dr. Henry Barton Jacobs, 11 Mount Vernon Place, Baltimore.——In explanation of the presentation to Osler on his birthday, July 12, it might be stated that a dummy volume containing such articles as were already in print was used in the presentation ceremony.

Meeting of Safety Congress.—An entire general session and two sectional meetings of the eighth annual Safety Congress of the National Safety Council will be held in Cleveland, October 1 to 4, and ample opportunity will be offered for the discussion of health service in connection with organized accident prevention work. Among the subjects to be taken up in the health service section are: industrial health hazards; the subnormal worker (pathologic); industrial dermatoses, bad teeth and fatigue; the scope of physical examination in industry; the industrial clinic; health education in industry, the coordination of industrial and community health activities; malingering, involving the problem of getting the sick or injured employee back to work; the treatment of burns, and what the war has taught us in surgery. The headquarters of the congress will be at the Hotel Statler.

Southwestern Tuberculosis Conference.—The Southwestern Tuberculosis Conference will be held at the Hotel Virginia, Long Beach, Calif., October 1 to 3, under the auspices of the National Tuberculosis Association. This conference includes the states of Arizona, California, Colorado, Kansas, New Mexico, Oklahoma and Texas, and the purpose of the meeting is to afford the opportunity for an exchange of ideas regarding the various public health and tuberculosis problems encountered in these states and the best way to meet them. The officers of the conference are: president, Dr. Robert A. Peers, Colfax, Calif.; vice presidents, Dr. Jeremiah H. Metzger, Tucson, Ariz.; Dr. Charles C. Browning, Los Angeles; Dr. Gerald B. Webb, Colorado Springs, Colo.; Dr. Samuel J. Crumbine, Topeka, Kan.; Mrs. A. Otero-Warren, Santa Fe, N. M.; Mr. E. K. Gaylord, Oklahoma City, and Mr. J. D. Harper, Dallas, Texas, and secretary, Mrs. E. L. M. Tate-Thompson, Fresno, Calif.

Mississippi Valley Conference on Tuberculosis.—The Mississippi Valley Conference on Tuberculosis will be held at Des Moines, Iowa, September 22 to 24, with headquarters at the Fort Des Moines Hotel. In addition to the clinical programs, and schedules for September 23 and 24, a series of six demonstrations and clinics in early diagnosis of tuberculosis will be given under the auspices of the Iowa Trudeau Society. Leading clinicians from the northern states of the Mississippi Valley will be assisted by Dr. H. R. Landis of the Henry Phipps Institute, who is the representative at the conference of the National Tuberculosis Association. On the last day of the meeting one of the sessions will be devoted to the consideration of a plan for closer coordination of private and public health agencies to be presented by Dr. George Thomas Palmer, assistant director of the Illinois State Department of Health, Springfield, Ill. The luncheon round table will be presided over by Dr. William De Kleine, health officer of Flint, Mich., at which the field of the health officer in the campaign against tuberculosis will be considered.

FOREIGN

Red Cross Aid Against Tuberculosis in France.—Through the agencies of the American Red Cross, the campaign initiated by the French to combat the spread of tuberculosis and which was practically nullified by the war, has been reopened and at present there is a capacity for 1,983 bed patients in hospitals in Paris and for 5,610 bed patients outside of Paris. The total number of beds established by the Red Cross Bureau of Tuberculosis amounted to 24,185. Aid was furnished to the extent of 3,287,417 francs and relief was supplied to the extent of more than three fourths of a million of francs.

Maternal Welfare Work in France.—Maternal welfare work, established in France under the auspices of the American Red Cross, children's bureau, by Dr. Fred L. Adair, Minneapolis, is to continue. A plan of prenatal consultation established by him is also to be continued. In the work in two sections in Paris, about 500 prospective mothers were cared for in the consultations, and also in their homes, and in the hospital social service work, which had been conducted only two months, more than 500 prospective mothers were interviewed and advised how best to meet their new problems of living. An organization has been formed to carry on the medical and social work installed in the hospital. An attempt is being made to form a society of social visitors who will be capable of teaching prospective mothers the proper methods of caring for themselves and of making preparations for childbirth.

Meeting of Swedish Medical League.—For the first time since the beginning of the war, the Almänna svenska Läkareforening held a representative meeting in August and outlined new plans for safeguarding the economic and other material interests of the profession. The league invited members of similar organizations in Denmark and Norway to consult with them in regard to enlarging the scope of the organization. Its efficacy has been hampered in the past by the fact that some 400 physicians in Sweden have not cared to join the league, so it does not represent the entire profession, while in Denmark and Norway, nearly every member of the profession is enrolled in their respective organizations. The Swedish profession has not felt the need for organization so much in the past, but now vital questions in regard to sickness insurance, etc., are confronting them and vigorous efforts are being made to rouse physicians throughout the land to organize for more effectual action. The corresponding Norwegian society has a board of various officers, but the management is placed in the hands of the general secretary, Dr. R. Hansson, who gives his entire time to the work, with an annual salary of 20,000 crowns. He is empowered to consult with other members of the board residing in Christiania, as the chief officers live elsewhere. The Swedish league has a by-law to the effect that the president must be a resident of Stockholm, the headquarters of the society. It publishes a special journal, the *Almänna svenska Läkartidningen*. The president of the league, Professor Lennmalm, has been appointed rector of the Karolinske Institut and on his resignation, Prof. H. Forssner was appointed president. The name of the league was changed to Sverrigs Läkareförbund. The *Ugeskrift for Læger*, which is the organ of the corresponding Danish league, comments that the meeting will undoubtedly make its influence felt in closer relations between Scandinavian medical men in general.

LATIN AMERICA

Prize for Ambidexterity.—The Asociación Escuela de Medicina of Guayaquil, Ecuador, has offered a prize of $100 for the teacher who can present at a public meeting, May 5, 1920, the largest number of scholars trained to use both hands for the ordinary demands of life and especially for handwriting. Competition is restricted to teachers of the province of Guayas.

Yellow Fever.—Major-Gen. William C. Gorgas, formerly Surgeon-General, U. S. Army, who has been investigating the sanitary matters in Central and South America, has, it is reported, offered to assume technical directorship of the sanitation of Guayaquil, Ecuador, provided the money for the work is supplied by the municipality or the republic. ——At the request of the Peruvian authorities, General Gorgas is about to proceed to Piura, about 210 miles from Guayaquil, which is infected with yellow fever. General Gorgas and his party left Guayaquil, Ecuador, for Callao, Peru, September 1.——Dr. M. E. Conner, chairman of the Rockefeller Foundation Commission to Guayaquil, Ecuador, was presented with a gold medal, August 11, in recognition of his services in the campaign against yellow fever.——New cases of yellow fever were reported, September 1, at Corinto, Nicaragua, and Amapala, Honduras.

LONDON LETTER

LONDON, Aug. 13, 1919.

Reconstruction at Guy's Hospital

With the conclusion of the war, reconstruction has been the keynote in much of our public life, and medical organizations are by no means exempt. A new departure at the London Hospital—the appointment of paid whole-time physicians who will devote themselves entirely to hospital work, including research—has been previously recorded in these columns (April 12, p. 1091). At Guy's Hospital a similar scheme is being inaugurated. A committee of the medical school has been for some time considering what changes are necessary to secure the better preparation of medical students for the practice of their profession, a more effective use and coordination of medical skill for the benefit of patients under treatment in the hospital, and constant advances in medical science. The recommendations of the committee have been approved by a meeting of all the teachers in the school, and will come into force next October. Owing to a rebuilding scheme, which has been held up by the war, the hospital is short of beds. As soon as more become available, it is intended to appoint a professor of clinical medicine; and possibly a similar innovation will take place on the surgical side. But it is thought to be a mistake to await this appointment before initiating a new kind of advanced teaching. Accordingly, Dr. Hurst, the present head of the neurologic department, will be given the title of "director of advanced studies in clinical medicine." Beside taking on the duties of full physician, he will still remain head of the neurologic department, but an assistant neurologist will also be appointed. His beds will form a mediconeurologic clinic, half of them being devoted to neurology and half to general medicine. The assistant neurologist and an assistant physician will work with him, each of them taking charge of a quarter of the beds in the clinic, Dr. Hurst looking after the remaining half. Once a week Dr. Hurst and the assistant physician will examine all their medical patients together, and once a week Dr. Hurst and the assistant neurologist will examine their neurologic patients together. There will be clinical demonstrations and lectures on four mornings in the week for six months during the winter from 12 to 1, and on one of these mornings there will be a combined demonstration with the corresponding surgeon or with one of the heads of the special departments. There will be ample opportunity for graduates and others who wish to take up some special line of medical investigation.

There will also be important changes in the other medical and surgical "firms." At present the assistant physicians and assistant surgeons act rather as locum tenentes to the physicians and surgeons than as assistants. The "unit system" which is to be adopted implies the linking together of the two in one firm, each firm having its own beds and its own outpatient department. The head of the unit and his assistant will be associated in teaching and in investigating cases. On the medical side it is hoped that once a week there will be a combined round, when cases of special interest will be discussed. The surgeon and assistant surgeon will operate on the same afternoons, preferably in adjacent theaters, and in special operations they may be able to render each other assistance. The assistant physicians and assistant surgeons will take charge of a quarter of the beds of the unit. There will be a registrar, house officer, clerks and dressers attached to each medical and surgical unit. Closer linking of the wards and laboratories will be brought about by arranging that members of the junior staff shall usually hold two appointments. There will be four medical registrars and four surgical registrars, one attached to each firm. These will be part-time appointments. The registrars will be able to hold demonstratorships in the departments of the medical school, as the anatomic, physiologic, pathologic or bacteriologic departments, or they may hold clinical assistantships in the various special departments. The association of the wards and laboratories will be further facilitated by the creation of eight new part-time posts. The holders of these posts will be called medical or surgical assistants. There will be one attached to each firm. They will have no routine duties in the wards, but they will spend their time carrying out medical or surgical investigations under the supervision of the head of the firm and the head of one of the laboratories. The assistants, like the registrars, may hold other part-time appointments in the hospital or medical school. Further, these new appointments will be open to men from other schools. Graduates who come to Guy's for shorter periods of study, and wish to carry out clinical investigations, will likewise be given the title of "assistant" (unpaid) so as to obtain a status in the wards. When all these posts are filled, there will be, besides the mediconeurologic clinic, three medical firms and four surgical firms, each firm consisting of two members of the staff, a registrar and assistant house officer, and a number of clerks or dressers. The present assistant surgeon's firm will no longer exist as a separate entity. Each firm will be complete in itself, carrying on its own outpatient department in close association with its inpatient department.

Gas Poisoning: A Question of Survivorship

A curious case has been raised in the probate court as to the survivorship of a husband or wife who died of poisoning by illuminating gas. They were both over 80 years of age, lived alone, and were found dead in their bedroom one morning. As the husband had left in his will all his property to his wife, the question of survivorship had to be settled between her executrix and the husband's next of kin. On the day before death she complained that the gas fire in the bedroom kept "popping" and wanted cleaning. The husband was found lying on the floor in front of the gas fire from which gas was escaping. He was partially dressed. Nearby was a pair of pliers. The wife lay on the bed on the side farthest from the gas fire, and on the table by the bedside was a novel and a small paraffin lamp, still burning. The burden of proving that the wife survived lay on her executrix. It was submitted that as the husband was on the floor nearest to the escaping gas, the wife survived. The judge held that there was no evidence that the wife survived, and therefore decided in favor of the husband's next of kin.

Wood Alcohol as a Beverage

No cases of blindness due to methyl alcohol, such as have been described in the United States by Casey Wood and others, have been observed in this country. This has been explained by the fact that methyl alcohol in a refined form, such as Columbia spirits, is not produced here, the methylated spirit produced for commercial use being too nauseous for drinking. However, cases of drinking them are reported from time to time. The Dundee Town Council has recently approached the government with regard to the growing use of wood alcohol as a beverage, and with the proposal that it should be rendered still more nauseous by the addition of chemicals which would make it entirely unfit for human consumption. The experience of Dundee is corroborated by practically every city in Scotland. The increased consumption is probably due to the scarcity of whisky following the war.

Dentistry in the Army

In his presidential address at the annual meeting of the British Dental Association, held in London, Mr. Montagu F. Hopson delivered a scathing* indictment of the military authorities. He said that the outbreak of the great war found our forces quite unprepared dentally. There was no organized dental unit, either for home or for field purposes. All the resources of the association were at once placed at the disposal of the government, but expert advice was rejected. Service dental arrangements were mishandled, not to say bungled. Failure to grasp the situation may have been due to ignorance on the part of the chiefs of the army medical department to begin with, but they later displayed a culpable obstinacy which led to a grave wastage of man power and a large amount of unnecessary and easily preventable disease and suffering among the troops in the field and the wounded in our hospitals. The policy of the executive was clear and definite, and was finally vindicated, namely, that with an acknowledged general shortage of dentists even to meet the needs of the civil population, they could most advantageously serve their country in the national emergency in their professional capacity, and that all should be mobilized for service. This obvious fact was only slowly recognized. Dentists commissioned as temporary lieutenants on the general list were appointed in driblets and were employed under the supervision of medical officers possessing no dental knowledge. There was an utter lack of organization. Examples of efficiency furnished by our colonial forces were persistently ignored. In the meanwhile, skilled and highly trained men were being wasted in the ranks, the proffered services of those possessing expert knowledge in the treatment of facial injuries were declined, and dental schools, the nurseries of professional recruits, were depleted. For three whole years the government remained indifferent to the value and importance of the dental surgeon as a national asset. As the war drew to its victorious close some sort of order

gradually evolved in army dental arrangements, but there was still lacking that one esential to an efficient organization—an administrator, possessing a dental qualification, and given unhampered authority over the men under his command. Mr. Hopson held that while army dental treatment must be closely linked with the Royal Army Medical Corps, it can never be adequate until a definite dental corps has been established, modeled on the lines adopted by our colonies and certain of our allies. Similar corps must be formed for the navy and the air force.

PARIS LETTER

Paris, Aug. 14, 1919.

The Treatment in Pott's Disease

At a recent meeting of the Societé de chirurgie de Paris, Dr. Théodore Tuffier communicated the results of his attempts to treat Pott's disease by the Albee method. Since 1911 Tuffier has applied this method to eleven patients with Pott's disease, aged from 17 to 59, who had been suffering from the disease for from four months to five years, and who presented a kyphosis involving a variable number of dorsolumbar vertebrae and complicated at times by a cold abscess. The favorable prognosis of this operation is remarkable. On one occasion, the graft broke; nevertheless, the anatomic and therapeutic results were perfect. In another case, the graft was expelled owing to suppuration. In spite of this fact, a solid mass of bone was formed which welded together the spinous processes and immobilized perfectly the spinal column.

As for the more remote therapeutic results, the history of five cases was followed for from one to three years after the operation. Three of these patients are in a very satisfactory condition, both generally and locally. They complain little or not at all of fatigue or pain, and present an absolute immobility of the region operated on. The fifth patient, although immobilized in the region operated on, presented a new focus in the upper portion of the dorsal cord. One patient could be seen only once after the operation; namely, two months later. She was at this time in perfect condition; walked without fatigue and had no pains. Another patient succumbed to pulmonary tuberculosis and to multiple osseous suppurations. Necropsy revealed that the union between the graft and the spinous processes was absolutely perfect and that the spinal column was completely immobilized.

Tuffier also reported that he had recently (in March, 1919) applied with success the Albee method to the treatment of a patient with suboccipital Pott's disease, but that he had varied the technic slightly in that he had immobilized the cervical vertebrae for several days after the operation by means of a Minerva cast. A recent roentgenogram shows the graft in place and the two extremities definitely fixed. The head is immobilized, and only the neck executes the necessary movements of flexion and extension.

The Nineteenth Congress of Urology

The nineteenth congress of the Association française d'urologie will open in Paris at the Faculté de médecine, Oct. 8, 1919. The main question to be discussed at the congress is: traitement des pyélonéphrites non-tuberculeuses chez l'homme (the treatment of nontuberculous pyelonephritis in man).

The Use of Mineral Springs for Soldiers

Dr. Louis Mourier, undersecretary of state for the army medical department, has decided to increase considerably the number of mineral springs at which soldiers (whether in active service or discharged) whose affections, contracted or aggravated by military service, are amenable to thermal treatment may be cared for. Before the war there were only six military hospitals located at thermal springs. These were at Amélie, Barèges, Bourbon-l'Archambault, Bourbonne, Plombières and Vichy. During the war, profiting by the fact that most of the thermal springs had transformed their hotels into temporary hospitals, the army medical department instituted thermal treatment for soldiers in thirty-six of the spas. During 1918, about 20,000 men received treatment. After the war closed it of course became necessary to turn the hotels back to their civilian clientage.

A commission was appointed to decide on a list of springs that seemed necessary in order to meet the needs of at least the majority of medical and surgical cases among the soldiers, both active and discharged, in which indications were such as to make thermal treatment advisable. A recent circular enumerates the twenty stations designated by the commission, and states the necessary formalities that must be complied with in order to secure admission to the stations for treatment. The main requirement is the filling out of a blank setting forth the principal indications for such treatment.

Interallied Conference Relative to the War Mutilated

The third interallied conference for study of questions relative to the war mutilated will be held at Rome, Oct. 12-17, 1919, under the chairmanship of Prof. Riccardo Galeazzi.

An Expression of Gratitude

Marshal Pétain, commander of the armies of the north and northeast, recently addressed an open letter to M. Jean Dupuy, president of the Syndicat de la presse parisienne, in which he expressed gratitude in the name of the French army for the Oeuvre des trains de blessés, a soldiers' welfare society organized by the syndicate. From the beginning of the war this society, which was particularly well organized, devoted itself most actively and generously to the various medical services. Under the most difficult circumstances the personnel of the society gave of their time, money and strength without counting the cost.

The French Red Cross in Lithuania

Mme. Edgar Wisner, a volunteer nurse of the Association des dames françaises (one of the three societies that go to make up the French Red Cross), has offered her services for the organization and direction of a relief expedition to be sent to Lithuania. The sending of this expedition was decided on after the receipt of appeals for assistance from Lithuania, which was completely devastated by the Germans. With the aid of the undersecretary of state for the army medical department, Mme. Wisner is in a position to carry out the project. A stock of provisions, clothing, surgical dressings, etc., has been secured through contributions from the French Red Cross, as well as other war welfare organizations working under the auspices of the undersecretary of state for the army medical department. Mme. Wisner, who has already left France for Lithuania, is assisted by Mlle. Nine Decourtray, also a volunteer nurse.

Death of Dr. Félix Brémond

Dr. Félix Brémond, honorary president of the Syndicat de la presse scientifique, died recently at Lavandou (department of the Var) at the age of 76. Dr. Brémond is the author of several medical works, among which may be mentioned "Les préjugés en médecine" and "Rabelais médecin."

Restrictions Regarding the Use of Thermal Springs

Are bathers at thermal springs under obligations, before commencing treatment, to provide themselves with a circular of instructions issued by the attending physician of the thermal station, as asserted by the superintendent of the thermal establishment of Saint-Christau (department of Basses-Pyrénées)? A court decision has been rendered in the negative which upholds the principle of absolute liberty as regarding the use of thermal and mineral springs, since no administrative regulations have been issued restricting the application of the law of 1860.

The Action of Centrifugal Force on the Human Organism

At a recent meeting of the Academy of Medicine, Professor Broca and Dr. Garsaux gave a report of some experimental studies made on animals subjected to centrifugal force. These studies were carried out with a view of ascertaining the causes of the accident which recently befell the aviator Gilbert. An aviator is supposed to be able to resist twenty times his own weight. At this pressure, there are elements of danger for the human organism. Broca and Garsaux put animals weighing from 10 to 13 kg. in an especially constructed centrifuge. The movements of the centrifuge produced signs of undue pressure on the nerves accompanied by cortical epilepsy and lesions of the cerebellar peduncles. The animals were subjected for the space of five minutes to a force varying from twenty-five to ninety-eight times the force corresponding to their weight. At the last trial of high speed, at the extreme limit, they brought about the quick death of the animal. The animal had resisted a force up to eighty times its own weight. In the trials that terminated in the death of the animal the abdomen was found to be gorged with blood.

From these experiments Broca and Garsaux concluded that, though the violent destruction of the organism is not a cause for anxiety, nevertheless the centrifugal force may give rise to disturbances of the circulation and to lesions of the nerve centers within the brain.

Marriages

LAWRENCE CHESLEY CHISHOLM, Asst. Surg., Lieut. (j. g.), U. S. Navy, Salem, Mass., to Miss Olive R. Conrad of Hagerstown, Md., August 21.

JOHN HADLEY CALDWELL, Newport, Ky., to DR. IDA MAY WESTLAKE of Cincinnati, at Mount Vernon, Ohio, August 26.

EDWARD PETER HELLER, Capt., M. C., U. S. Army, Philadelphia, to Miss Naomi Williams of Catasauqua, Pa., August 27.

THOMAS JUDSON MCBEE, Morgantown, W. Va., to Miss Norma Mildred Wright of Keyser, W. Va., August 14.

THOMAS BARRETTE BOLAND, Chicago, to Miss Ethel Johnson, at Milwaukee, August 20.

RAYMOND WILLIAM PAUL to Miss Emily E. Sheild, both of Richmond, Va., August 6.

JEREMIAH A. O'CONNOR to Miss Katherine Spoeri, both of Chicago, August 30.

Deaths

Joseph Pogue, Edwardsville, Ill.; Pennsylvania Medical College, Philadelphia, 1852; aged 84; who served throughout the Civil War, first as surgeon in chief of Burgess' Sharpshooters with the rank of major, and later as chief of the operating board; one of the organizers of the Madison County Medical Society, its secretary in 1857; and one of the chief promoters on the occasion of its reorganization in 1903; a surgeon of marked ability; died at his home, August 19, from pneumonia.

Charles Campbell Kimball ✠ Watertown, N. Y.; University of Buffalo, N. Y., 1895; aged 57; for the last four years commissioner of the board of health of Watertown; oculist and aurist to St. Joachim's Hospital and the New York Central system; a specialist on diseases of the eye, ear, nose and throat; died at his home, August 16, from nephritis.

Christian Sihler, Cleveland; University of Michigan, Ann Arbor, 1871; aged 70; formerly professor of histology in the Western Reserve University, Cleveland; one of the founders of Lutheran Hospital, Cleveland, and president of the medical staff until 1910; medical director of the Windsor Hydriatic Institute; died at his home, August 22.

Wilbur Pledge Stubbs ✠ Baltimore; University of Maryland, Baltimore, 1902; aged 39; school examiner for the Baltimore Health Department; a specialist in pulmonary diseases; a member of the staff of the University Hospital, Baltimore; died in that institution, August 25, from disease of the kidney.

Commodore Perry Coulson, Chelsea, Iowa; State University of Iowa, Iowa City, 1889; aged 58; a member of the Iowa State Medical Society; for one term mayor and health officer of Chelsea, and for several years a member of local school board; died at his home, August 15, from diabetes.

Herbert Granville Leslie ✠ Amesbury, Mass.; Harvard University Medical School, 1899; aged 48; a specialist on diseases of the ear, nose and throat; died at the Anna Jaques Hospital, Newburyport, Mass., September 1, from peritonitis following an operation for appendicitis.

Thomas R. Hillard, Widnoon, Pa.; University of Illinois, Chicago, 1899; aged 50; who served as captain, M. C., U. S. Army, for two years, was discharged, March 8, 1919, and located in Oak Mount, Pa.; died in that place, June 18, after an operation for appendicitis.

Albert Lane Norris, Cambridge, Mass.; Harvard University Medical School, 1865; aged 80; a member of the Massachusetts Medical Society; assistant surgeon of U. S. Volunteers during the Civil War; died in the Deaconess Hospital, Brookline, Mass., August 29.

John R. Boynton, Chicago; Hahnemann Medical College, Philadelphia, 1880; formerly president of and professor of surgery and clinical surgery in Hering Medical College, Chicago; died in the Wabash Valley Sanitarium, Lafayette, Ind., August 22.

✠ Indicates "Fellow" of the American Medical Association.

William H. Hubbard, Marion, Ind.; Medical College of Indiana, Indianapolis, 1878; aged 70; from 1879 to 1883 a member of the staff of the Central Indiana Hospital for the Insane, Marion; died at his home, August 23, from cerebral hemorrhage.

Francis Reber Musser ✠ Oakland, Calif.; University of Pennsylvania, Philadelphia, 1895; aged 59; a member of the Pacific Coast Oto-Ophthalmological Society; a specialist on diseases of the eye, ear, nose and throat; died at his home, August 26.

Robert Laughlin, Steubenville, Ohio; Western Reserve University, Cleveland, 1876; aged 67; a member of the Ohio State Medical Association; a member of the local board of education; died at his home, August 23, from cerebral hemorrhage.

Zebulon Hamilton Shultz ✠ Masonville, Ky.; Hospital College of Medicine, Louisville, Ky., 1901; aged 52; died at his home, July 14, from the effects of carbolic acid, self-administered, it is believed, with suicidal intent.

Edward Ratch Sisson, New Bedford, Mass.; Berkshire Medical College, Pittsfield, Mass., 1853; Homeopathic Medical College of Pennsylvania, Philadelphia, 1854; aged 90; died at his home, August 27.

John J. Roberts ✠ Scranton, Pa.; University of Vermont, Burlington, 1885; aged 59; at one time coroner of Lackawanna County; who was operated on, July 28, for intestinal obstruction; died, July 31.

James D. Graham, Dalton, Ga.; Atlanta (Ga.) Medical College, 1868; aged 84; surgeon in the Confederate Service throughout the Civil War; died in a hospital in Atlanta, August 14.

Joseph McCann, Columbus, Ohio; Columbus (Ohio) Medical College, 1879; aged 65; died in the Grant Hospital, Columbus, August 28, from the effects of a carbuncle of the neck.

H. W. A. Prichard, Harrisonburg, La.; Tulane University, New Orleans, 1899; aged 49; died in Natchez, Miss., August 11, from acute gangrenous appendicitis.

William M. Pierson, Morristown, Ind.; Medical College of Indiana, Indianapolis, 1874; aged 69; died at his home, August 16, from chronic interstitial nephritis.

Charles G. Anderson ✠ Detroit; Detroit College of Medicine, 1893; aged 50; died in Harper Hospital, Detroit, August 19, from hemolytic jaundice.

Charles William Powell, Lowndesboro, Ala.; University of Alabama, Mobile, 1890; aged 53; died at his home, August 6, from tuberculosis of the intestines.

Edward Womack Currie ✠ Charlesbury, N. C.; North Carolina Medical College, Charlotte, 1907; aged 41; died at his home, June 26, from pneumonia.

Elmer Burton Hadley ✠ Waterloo, Iowa; Eclectic Medical College of Indiana, Indianapolis, 1905; aged 49; died in Indianapolis, June 4, from uremia.

Horace Clinton Coolman, Hudson, Ohio; Cleveland University of Medicine and Surgery, 1869; aged 70; died at his home, August 15, from carcinoma.

Ralph Raum Boyle, Philadelphia; Jefferson Medical College, 1887; aged 52; died at his home, August 26, from congestion of the brain.

Joel L. Selman, Douglasville, Ga.; Atlanta (Ga.) Medical College, 1879; aged 64; died at his home, August 13, from heart disease.

George Hadden, Alta, Iowa; Minnesota Hospital College, Minneapolis, 1888; aged 75; died in Alta, June 24, from myocarditis.

George Lawrence McDermott, Denver; Rush Medical College, 1897; aged 48; died at his home, August 23, from heart disease.

Christiana A. Cook, San Francisco (license, California, 1876); aged 88; died at her home, August 20.

Louis P. Knoll, Newcastle, Pa.; Baltimore University, 1904; aged 42; died in Buffalo, August 12, from tuberculosis.

John Charles Kerr ✠ Lieut., M. C., U. S. Army, Jefferson, Pa.; University of Pittsburgh, 1897; aged 48, died Oct. 27, 1918, from bronchopneumonia. In THE JOURNAL of March 8, the death of Dr. John Cleon Kerr, Lieut., M. C., U. S. Army, Hazlewood, Pittsburgh, was announced. This was an error. The announcement should have read as above written.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Fraud on the Public and on the Profession

CASE'S RHEUMATIC SPECIFIC

Another Quack Is Denied the Use of the United States Mails

Jesse A. Case of Brockton, Mass., was the "sole proprietor" of a widely heralded nostrum, "Case's Rheumatic Specific." As part of his advertising paraphernalia, Case invariably printed after his name "F.S.Sc. (Lond.)." These imposing letters, as The Journal readers will remember, stand for "Fellow of the Society of Science, Letters and Arts of London," a serio-comic humbug to which many quacks and "patent medicine" fakers belong. The entrée costs one guinea ($5)!

More than five years ago The Journal exposed "Case's Rheumatic Specific." The A. M. A. Chemical Laboratory analyzed the nostrum and found it to have for its essential drug sodium salicylate. Case made much in his advertising of the claim that his preparation contained "No Salicylic Acid." One of the most imposing testimonials used by Case came from one Dr. Willard H. Morse, who, also, is an "F.S.Sc. (Lond.)." Morse, as our readers remember, is a confirmed testimonial-giver, having furnished "certificates" and "analytical reports" galore, on consumption cures, epilepsy cures, cures for blindness, and what not. Strictly in keeping with the orthodox tenets of mail-order quackery, Case used testimonials from a preacher and a village postmaster.

A few days after The Journal's article on the Case nostrum appeared (it was published Jan. 31, 1914) Case's attention was called to it by a correspondent. In reply Case sent a five-page letter that was a gem of its kind. We quote briefly from it. Spelling as in original:

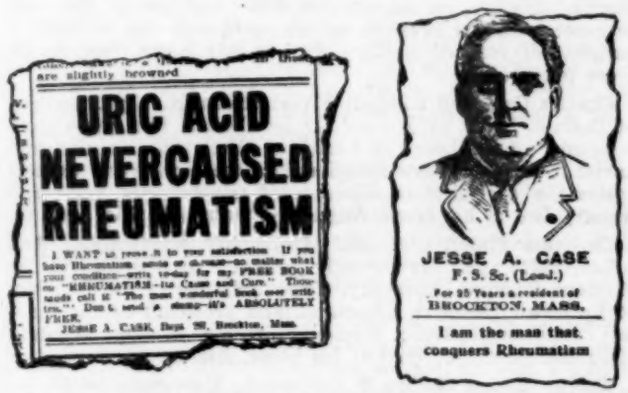
> "I have read the article and analyzed it thoroughly. I know these people and just the object they have in view. I imagine that this was the result of one of two people, either the Medical Advisary Board, this is a syndicate in New York made up of Ex-Postoffice Inspectors. Whether they resigned or were discharged that of course I do not know nor do I care. They have been after me for three years to pay them $600 a year to supervise my printed matter and advertisements, etc. I have told them plainly that I was fully capable of attending to my own business, that everything I had written or printed was true and that I could substantiate it far stronger than anything I had said. This was either from them or from some physician. . . . I suppose that I have been the prime cause of the loss in money, probably into the millions of dollars, to physicians over the country. I suppose they feel a little hurt about the matter, but of course it makes no difference to me. . . . Now as regards sueing or bringing libel against this Journal, it would be sueing a beggar and catching a louse. . . . This article is worth $10,000 to me. I don't know where I could have gone and got the help that they will give me, for that money."

Case also modified his advertising matter somewhat and in a booklet that he sent out made this cryptic reference to The Journal's exposé:

> "The Medical Journals are interested. The American Journal in their January issue has devoted nearly a page and one-half to me and my Specific."

Now comes the United States Post Office and interferes with Mr. Case's presumably lucrative quackery. In April of this year, citation was issued, calling on Case to show cause why a fraud order should not be issued against him. On June 5 the hearing took place, which was attended by Case and his attorney, Robert O. Harris of Boston. After the government's charges and Case's defense had been heard, the matter was gone over by Judge W. H. Lamar, Solicitor of the Post Office Department, who, in his memorandum to the Postmaster General, recommended that a fraud order be issued. It was issued Aug. 18, 1919. To quote from Judge Lamar's memorandum:

> "The scheme is typical of the ordinary mail-order medical fraud scheme. The advertising matter is of a kind that would induce nearly any one suffering pain caused by any form of local trouble to purchase the remedy. This is the purpose and result of the circulation of the advertising matter through the mails. The promoter of the scheme, Jesse A. Case, was formerly a police officer. He served on the police force at Brockton, Massachusetts, for a number of years and while thus employed conceived the idea of getting up the alleged remedy for rheumatism which he calls 'Case's Rheumatic Specific.' He says, among other things, that this so-called specific is not to be compared with any other treatment or medicine for rheumatic diseases; that it is designed to remove the cause—not to treat the effect. An analysis of the constituents of this remedy made by the Department of Agriculture shows that it is made up as follows:
>
> RHEUMATIC PILLS "A"
>
> | | |
> |---|---|
> | Ext. Colchicum Root | 1 gr. |
> | Sodium salicylate | 2 gr. |
> | Potassium acetate | 1/10 gr. |
> | Potassium sulphate | 1/10 gr. |
> | Calc. Magnesia q. s. | |
>
> LIVER TABLETS, NO. 158541 (FULL STRENGTH)
>
> | | |
> |---|---|
> | Ext. Cascara | 3 gr. |
> | Aloin | 3/10 gr. |
> | Resin Scammony | 3/10 gr. |
> | Podophyllin | 1/3 gr. |
> | Sodium Bicarb. | 5/6 gr. |
> | Oleoresin Capsicum | 1/50 Min. |
>
> The memorandum declares, further, that a careful and extensive report—which contained the analyses just given—had been made for the Post Office Department by Dr. Lyman F. Kebler of the Bureau of Chemistry. Judge Lamar states that Dr. Kebler's analysis of the representations made by Case in exploiting his remedy "points out so clearly the fraud of the scheme that it is deemed pertinent to quote all of the report except the formal parts thereof." As The Journal in its previous article has already covered the fraudulent representations made by Case for his "specific," it is unnecessary to go again into the matter extensively. Judge Lamar, in summing up the matter against Case, said in part:
>
> "It will thus be seen that practically the whole realm of local inflammatory conditions is covered by the claims of this mail-order vendor for his remedy. It has long since been established as a fact that there are many kinds of affections of this character, each of which may arise from a different cause, and that in order to cure any kind of rheumatism or like ailments, it is necessary first to ascertain its character, and then to prescribe the treatment particularly called for. Case proposes with this remedy to remove any and every cause from which the particular condition being treated may arise. This cannot be done with any one treatment because it is a fact fully demonstrated and authoritatively established that a remedy which will relieve and cure a disease arising from one cause will as a rule in no wise help or cure a disease produced by another and different cause.
>
> "Mr. Case, the respondent herein, is not a physician, and has had little opportunity for study along medical lines.


are slightly browned
URIC ACID NEVERCAUSED RHEUMATISM
JESSE A. CASE
F. S. Sc. (Lond.)
For 25 Years a resident of BROCKTON, MASS.
I am the man that conquers Rheumatism

Case was a liberal purchaser of newspaper space. On the left is a typical advertisement of Case's Rheumatic Specific. On the right: a reproduction of a portion of one of Case's envelopes. He missed few oportunities to feature his title "F.S.Sc. (Lond.)".

. . . He knows nothing of the effect of drugs and he is incompetent to prescribe their use. When he sells one form of treatment for all forms of rheumatism, irrespective of the superinducing cause or causes of the trouble, he well knows that it is mere guess-work on his part—a hit or miss chance of recovery, and when he calls such a treatment a 'Specific for Rheumatism,' and solemnly urges its use as a cure for practically all forms of rheumatism he knows that he is not acting in good faith, and his scheme for obtaining money through the mails by such means should be suppressed. This medically unlettered layman poses as an expert in the treatment of rheumatic conditions and has the boldness to display to the public at the head of one of his pamphlets the words, 'Rheumatism, Its Cause, Its Cure, by Jesse A. Case, F.S.Sc. (Lond.).' The representations made by him throughout his entire literature are of a character which have frequently been declared fraudulent by this department. . . . Case describes how he cured himself of a bad case of rheumatism, and this alleged fact was amplified by his direct testimony; but the cross-examination of him shows that he had other troubles, which when removed by treatment other than his own remedy, what he thought was rheumatism gave him no more trouble. The evidence strongly indicates that if he had rheumatism at all it was by no means a serious case. He did have some other serious trouble, as his testimony shows, all of which was treated by physicians and surgeons successfully, after which he regained his health. The postmaster at Brockton, Massachusetts, reports that Case is receiving an average of twenty-eight letters a day in the conduct of this business."

Correspondence

PATHOLOGY OF THE MOUTH IN SCURVY

To the Editor:—I am prompted to write because of the editorial on "Diet in Relation to the Teeth" (THE JOURNAL, Aug. 9, 1919, p. 425).

It is true that the dental profession has gone daft on the subject of bacteria as a cause of disease in the mouth. The statement that "they [dentists] seem not to realize that the presence of bacteria in itself never causes disease: we have millions of bacteria in our intestines and still thrive. What harm do the micro-organisms do in the mouth?" is timely. If the dentists were more broadly educated, much time could be saved in the present methods of research. The "powers of resistance" have as much to do with diseases in the mouth as in other parts of the body—indeed, more so in regard to scurvy and kindred diseases of the jaws and alveolar processes, which is my purpose here to show.

The editorial quotes Zilva and Wells (Changes in the Teeth of the Guinea-Pig, Produced by a Scorbutic Diet, *Proc. Roy. Soc.*, London, B **90**:505, 1919), who have made extensive experiments in studying scorbutic animals at the Lister Institute in London. The following are the important points brought out:

> In advanced cases of scurvy, in guinea-pigs and monkeys, the teeth were apparently sound, but useless, since they had been loosened by the gradual absorption of the cement membrane of the alveolar sockets, which had left exposed that position below the neck. As a result, Zilva and Wells state, there must have occurred that periostitic pain, or something analogous, which follows in the case of human patients who are suffering from shrunken alveoli. These teeth also presented, in addition, all the appearances of the changes of senility. . . .
>
> In a scurvy tooth, the condition persists right up to the apex of the root; the change appears to start first in the odontoblastic cells at the top of the pulp, working down toward the apex, followed by distended blood vessels and hemorrhage; then complete fibroid degeneration follows.
>
> If we may believe the new evidence, which deserves a respectful hearing, the teeth are among the parts of the organism first affected by scorbutic causes. Damage may be detected in the teeth before any other symptoms are discovered. For this reason it is not at all unlikely that tooth defects arise owing to faulty diets that are not clearly recognized beforehand.

These points were all discussed and verified by me more than twenty-three years ago. They have all been reiterated over and over in reports of my researches in more than thirty papers, published in different medical and dental journals and in two books from 1886 up to the present time.

Constant research work has been conducted since 1878 on diseases of the alveolar process and teeth resulting from scurvy and lead poisoning, on dogs, cats, guinea-pigs, mice, sheep, cows, horses, monkeys and human material. Cases were obtained at the Cook County morgue and at the Cook County Insane Asylum at Dunning. Animals were salivated with mercury. Material from patients with tuberculosis, other wasting diseases, senility and autotoxic conditions were also examined. This work has all been illustrated, and the progress of the different diseases is comprehensively shown by photomicrographs and halftones.

To appreciate the pathology of the alveolar process, we must first have a clear idea of the anatomy and functioning of the jaws, alveolar process and teeth, since the structures here involved have no analogue in the human body. In some of the lower vertebrates there is a constant succession of teeth throughout life. One set is used for a short time, is shed, and a new set takes its place. As we rise in the scale of evolution, certain animals, including man, possess only two sets. The first is used for the purpose of masticating soft substances, and later when harder and more varied food is required, the first set is shed and a second takes its place which is intended to last as long as life.

When the animal or child is born there are no teeth and hence no alveolar process. While the teeth are developing, the bone or alveolar process builds itself about the teeth to hold them firmly in position. When these teeth are shed to make room for the second or permanent set, the alveolar process absorbs away. When the second set appears, the alveolar process builds itself about these teeth to give them greater strength than the first set. When the second teeth are extracted or lost by disease, the alveolar process again absorbs away. The alveolar process, therefore, is intended only to hold the teeth in position while they are in the jaw. It will be seen that the alveolar process is a transitory structure and is, therefore, very sensitive to a lowered vitality, irritation and disease.

The tooth, so far as disease of the alveolar process is concerned, is a foreign body. The only blood vessels which enter the tooth go direct from the main trunk into the apical foramina to make up and nourish the dental pulp. There are no blood vessels in normal tooth structure. The blood vessels in the alveolar process extend from the neck of the tooth to the end of the root, but reach only the cement of the tooth. The alveolar process, then, is an end-organ—dental pulp.

In disease, then, the tooth can be considered only as a foreign body. The alveolar process being a transitory structure and an end-organ, it is easy for the physician to understand why disease, including anemia, first attacks the alveolar process and why the alveolar process, and not the "teeth," is always first to indicate systemic disturbances.

For more than thirty years I have been able to detect systemic disturbances, such as anemia, kidney and heart lesions, metal and other poisonings, before they were recognized by the patient.

The simplest and most marked illustration of disease of the alveolar process is the symptom of senility. Absorption may begin as early as 30 years of age, and many persons lose all their teeth at 60. Absorption occurs in every mouth over 50 years of age. In my lectures to impress this important point on students I have often made the statement: If man lived long enough and remained in apparently good health, every one would lose his second teeth by absorption of the alveolar process. This might be called normal senile absorption. It is due to autotoxic and other poisons circulating in the blood.

The next most marked illustration of disease and poisons acting on the alveolar process is that of metal poisoning. Patients working in paints, in metal mines, in the arts, etc., frequently become ill. The first symptom of poisoning is developed in the alveolar process. All physicians are familiar with the old method of prescribing mercury, arsenic and other metallic drugs. The system was supposed to have received enough of the drug when "the gums are touched," meaning, of course, when they have become slightly inflamed. The character of the poisoning was indicated by the color of the

gums. In lead, the gums became blue; in brass, yellow; in mercury, red, etc. The metals accumulating in the tissues because of the end-organ nature of the structure gave the color to the gums, and also as an irritant caused inflammation.

Perhaps the most interesting symptom of bone absorption is that produced by anemia or some form of heart lesions in which the blood supply of the alveolar process is diminished. Nourishment is cut off and the alveolar process rapidly absorbs away without pain or pus. These people attend to their daily affairs and are not ailing enough to call a physician. The conditions referred to above are all called constitutional causes.

The local causes are all irritants, such as tartar, bad dentistry, excessive use of the tooth brush, tooth picks, etc. These irritants cause the blood to flow into the gums and alveolar process resulting in stasis. Nourishment is cut off and altered metabolism occurs, resulting in bone absorption.

The constitutional and local causes produce what I have called interstitial gingivitis (sometimes the irritation, inflammation and absorption begin at the apex or at another part of the root, but oftener at the gum margin, depending on the cause; hence the name). In their milder forms they have now been explained. There is no pain or soreness attached to this pathologic process. There is simply first absorption of lime salts, after which the fibrous tissue may remain, holding the loose tooth in position for an indefinite period, after which fibroid degeneration takes place and the tooth drops out.

If there is the least soreness, it does not occur until after the lime salts have been removed and the tooth has become loose.

The fibrous tissue may hold the tooth in position for years. The "cement membrane" (peridental), therefore, must be present for the attachment of these fibers to the tooth. The alveolar process, including the fibrous tissue, must first be destroyed, and not the "cement membrane," as stated in the editorial, after which the membrane disappears.

With these simple forms of pathologic conditions of the alveolar process explained, the action of the more severe forms of disease, such as scurvy, on the gums and alveolar process can be better understood.

The constitutional changes due to want of proper diet, altered metabolism, malnutrition, and want of resistance both in the system and in the alveolar process, together with stasis or impoverished blood, as well as poisons (irritants) in the blood, set up a violent inflammation with bone absorption and pain.

My researches do not admit of infection as a cause in any of the conditions cited. The infections, such as actinomycosis, Vincent's angina and trench mouth, which produce the same pathologic condition, are interesting but have no place in this communication.

Eugene S. Talbot, M.D., Chicago.

NEED OF GOVERNMENT ACTION TO CHECK BOTULISM

To the Editor:—I have just read with much interest your timely editorial on "The Relation of Forage Poisoning to Botulism" (The Journal, Aug. 23, 1919, p. 611), in which you refer to my recent contribution on this subject (*Am. J. M. Sc.* **158**:57 [July] 1919). May I venture to make a few comments partly in emphasis of what you have said, and partly additional thereto, hoping thereby to accelerate a movement toward government action, which I deem absolutely essential to the protection of the public health?

You refer to the recovery of one desperately ill patient under the use of the serum furnished by Professor Graham of the University of Illinois. I wish to say that I have never seen a more direct and striking rescue of a patient from an apparently hopeless condition by a single therapeutic agent on clinical trial for the first time. I should like to call attention to one very instructive point in another case (Case VI), in which Dr. Smith observed borborygmus as the first indication of recovery from the intestinal paralysis.

The neutralization of the botulinus toxin by fats cannot be too strongly emphasized, and clearly demands the prompt and energetic use of castor oil or some other laxative fat, for the double purpose of clearing out the ingested toxins, which are largely preformed under saprophytic conditions, and of lowering or destroying the virulence of the toxins by combination with fats. *This must be done quickly,* as intestinal paralysis rapidly supervenes, after which laxatives are, of course, entirely inert.

Another point which cannot be too strongly emphasized is that boiling not only kills the germ but also *destroys the toxin.* Thorough cooking is the most important prophylactic measure against this very widely distributed pathogenic saprophyte.

In this connection I am wondering whether economy of fuel in continental Europe, and the consequent less thorough cooking, which may of course be a matter of taste and habit as well, might not account for the apparently greater prevalence of botulinus outbreaks there. Their frequent and economically serious occurrence in this country among horses and other valuable animals is also suggestive, owing to the absence of cooking in ensilage food. Of course the latter, in the deeper layers of the silo, furnishes typical anaerobic conditions for the growth of this organism. So far as I know, animals are no more susceptible than man to this toxin.

I wish to urge that the machinery of the great American Medical Association be set in motion, in order that it may bring its influence to bear on the proper governmental departments, that there may be provided the greatest degree of protection both by way of prophylaxis and the prompt availability of a curative serum, the efficacy of which has been fully demonstrated experimentally on animals and to a very limited but apparently satisfactory degree on human subjects.

G. W. McCaskey, M.D., Fort Wayne, Ind.

"CONDUCTIVE ANESTHESIA BY INTRASACRAL INJECTION OF PROCAIN"

To the Editor:—In The Journal, July 26, 1919, p. 298, appeared an abstract of an article of mine in the *British Medical Journal,* under the title of "'Conductive Anesthesia by the Intrasacral Extradural Injection of Procain." Allow me to point out an inaccuracy in this abstract. I did not say that the method described is a new one. It was attempted nearly twenty years ago by Cathelin, and has been used from time to time since then by different French and German surgeons, with varying degrees of success. It has given best results in the hands of Americans, among others Dr. W. E. Faulkner of Boston, from whom I learned the technic in 1914. My statement was that, so far as I had been able to discover, the method was not in use anywhere in this country (England). I find that I am mistaken in this, and that Mr. Percival Cole has been using it recently at the Cancer Hospital, London.

I should be grateful if you would publish this letter, that I may not appear to claim indirectly a priority which does not belong to me.

Samuel R. Meaker, M.D., M.R.C.S. (Eng.),
Esher, Surrey, England.

The Profession in the War.—We have passed through a time which, thank God, we shall never see again, under a strain which we perhaps did not really appreciate till it was relaxed. Looking back upon it all, we can say, first, that without any doubt whatever the medical work of the army was extraordinarily well done; second, that those at any rate who were connected with hospitals learned more than they ever learned before; and, lastly, that perhaps the greatest lesson of all was that over this wide area and throughout this immense body of men there was a unity of effort and a fellowship of spirit such as we had never before imagined could exist.—Major General Sir Wilmot Herringham, C.B., M.D., *British Medical Journal,* Jan. 4, 1919.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

WAR RISK INSURANCE

To the Editor:—Just a few words of disagreement with your indorsement of War Risk Insurance in THE JOURNAL, August 23. Yours is the first favorable comment I have read, while the complaints are unceasing.

1. If the bureau were efficiently managed, as it is not, the plan would still be a poor one. It arbitrarily dictates what persons may be beneficiaries, and it does not pay cash.

2. Why advertise low rates on $1,000 of insurance, when they are in fact high rates on the amount of insurance actually given? In the twenty years, if the beneficiary live that long, the government gets back in interest on $1,000 (deducting the payments each month) over 50 per cent. of what it pays out.

3. Now as to naming beneficiaries: My nearest living relative is an aunt. I was told she could not be a beneficiary eight months after I had applied for insurance. I was glad I had stopped my payments five months previously. The three premiums I did pay I charge to bitter experience.

STUART E. MANDEVILLE, M.D., New York.

ANSWER.—This letter was referred to the Bureau of War Risk Insurance, which replies:

1. The bureau has repeatedly recommended to Congress that the War Risk Insurance Act be changed so as to enlarge the permitted class of beneficiaries to include uncles, aunts, foster parents, etc. There is at present pending in the House of Representatives (H. R. 8778) a bill to amend and modify the War Risk Insurance Act in this and other particulars. If this bill becomes law, the insured under a United States government policy may elect to have the insurance paid in a lump sum to the beneficiary, or in monthly payments covering a period of not less than thirty-six months.

2. Your correspondent assumes that the government pays no interest on the unpaid instalments of the insurance during the twenty year period. Section 402 of the War Risk Insurance Act provides "That . . . all calculations shall be based upon interest at three and one-half per centum per annum. . . ." As a matter of fact, the bureau pays interest at 3.5 per cent. on all unpaid instalments; $5.75 per month for twenty years amounts to $1,380.

3. As stated above in answer to the first comment, the bureau has no discretion in the matter of the permitted class of beneficiaries. Section 402 of the War Risk Insurance Act provides: "The insurance shall be payable only to a spouse, child, grandchild, parent, brother or sister, and also during total and permanent disability of the injured person, or to any or all of them." The application for insurance in favor of an aunt, was, of course, invalid; and the premiums paid in may be recovered by writing to the Insurance Division, Bureau of War Risk Insurance, setting forth the facts, and giving the full name, rank and organization at time of applying for the insurance, and Army serial number if in the Army.

DEATH BY HANGING

To the Editor:—I am anxious to obtain information: (1) as to what lesion of the spine usually occurs after hanging; (2) as to how soon death ensues.

C. J. HABIEGGER, M.D., Watertown, Wis.

ANSWER.—1. The pathologic effects of hanging are partly those of strangulation, to which must be added the effects of the weight or fall of the body. It is possible, therefore, that death may occur without any lesion of the spine whatever, although it is quite common to have injury of the spinal cord or medulla by dislocation of the vertebrae or fracture of the odontoid process of the axis. The findings depend on a number of factors, including length of drop, weight of body, adjustment of noose, etc.

2. If the neck is broken death is immediate; in the majority of instances, however, asphyxiation is the cause of death. This may require anywhere from one minute to a much longer time—heart beats sometimes persisting for from ten to twenty minutes. The mechanism has been classified by Peterson and Haines' textbook of Legal Medicine and Toxicology into three stages: first, quietude, consciousness being possible, lasting from a few seconds to one or one and one-half minutes; second, the stage of respiratory efforts and convulsive movements, with unconsciousness lasting from two to four or five minutes; third, the stage of almost absolute quiescence, varying from a few minutes to as much as fifteen minutes before death finally ensues.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 7. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

COLORADO: Denver, Oct. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

IDAHO: Boise, Oct. 7. Hon. Robt. O. Jones, Commissioner of Law Enforcement, Boise.

ILLINOIS: Chicago, Sept. 22-25. Sec., Mr. Francis W. Shepardson, Capitol Bldg., Springfield.

IOWA: Des Moines, Sept. 16-18. Sec., Dr. Guilford H. Sumner.

KANSAS: Topeka, Oct. 14. Sec., Dr. H. A. Dykes, Lebanon.

MINNESOTA: Minneapolis, Oct. 7-9. Sec., Dr. Thos. McDavitt, 741 Lowry Bldg., St. Paul.

MISSOURI: Kansas City, Oct. 7-9. Sec., Dr. Geo. H. Jones, State House, Jefferson City.

MONTANA: Helena, Oct. 7. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NEW MEXICO: Santa Fe, Oct. 13-14. Sec., Dr. R. E. McBride, Las Cruces.

NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 16-19. Mr. Herbert J. Hamilton, Assistant, Professional Examinations, Albany.

OKLAHOMA: Oklahoma City, Oct. 7-8. Sec., Dr. J. J. Williams, Weatherford.

RHODE ISLAND: Providence, Oct. 2-3. Sec., Dr. B. U. Richards, State House, Providence.

UTAH: Salt Lake City, Oct. 6-7. Sec., Dr. G. F. Harding, Templeton Bldg., Salt Lake City.

WEST VIRGINIA: Charleston, Oct. 14. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.

WYOMING: Cheyenne, Oct. 6-8. Sec., Dr. J. D. Shingle, Cheyenne.

Report of Seventh Examination of the National Board of Medical Examiners

The seventh examination of the National Board of Medical Examiners was held in Philadelphia, June 2-7, 1919. The subjects of the examination and the relative value of each were: anatomy, 100; physiology, 75; chemistry, 75; pathology, 75; bacteriology, 50; materia medica, pharmacology and therapeutics, 75; medicine, 200; surgery, 200; obstetrics and gynecology, 75; hygiene and sanitation, 50; medical jurisprudence, 25. A percentage of 75 was required to pass. Falling below 65 per cent. in two subjects, or below 50 in one subject, constituted a failure.

There were seventy-three applicants who applied for examination. Sixty-five were found to have the essential preliminary and medical qualifications, and fifty-two of these appeared for examination. Of these, fifty-one passed, and one failed. The following colleges were represented:

PASSED

Name	College	Year of Grad.
J. Alison Moore,	University of Penna.	1918
Samuel E. Stokes,	University of Penna.	1918
Joseph P. Replogle,	University of Penna.	1918
Rowland S. Philips,	University of Penna.	1918
Royal L. Works,	Rush Medical School	1918
John H. Arnett,	University of Penna.	1916
Richard T. Ellison,	University of Penna.	1918
Henry B. Conrad,	Johns Hopkins	1916
Vernon W. Spickard,	University of Penna.	1918
William P. Creekmur,	University of Penna.	1918
Charles A. Behney,	University of Penna.	1917
Rodes E. Yager,	Johns Hopkins	1918
J. James Cancelmo,	University of Penna.	1917
James K. Stoddard,	Johns Hopkins	1916
Harriet T. Carswell,	Woman's Medical College	1918
Howard P. Sawyer,	Yale Medical	1918
Frederick L. Hartman,	University of Penna.	1918
Johan W. K. Kehrer,	University of Utrecht	1913
Wilburt C. Davison,	Johns Hopkins	1917
Alberta Peltz,	University of Penna.	1918
LeRoy H. Sloan,	Rush Medical	1918
Malcolm Kemper,	Rush Medical	1918
A. G. C. Schnack,	Johns Hopkins	1915
Robert Shoemaker 3d,	University of Penna.	1916
Charles F. Metzger,	University of Pittsburgh	1918
James F. Norton,	College of Phys. and Surgs. Columbia	1918
Kevork N. Bostanian,	College of Phys. and Surgs. Columbia	1916
Merle R. Hoon,	University of Penna.	1918
Bynum McW. Works,	University of Texas	1918
Alexander McL. Milligan,	University of Penna.	1917
Chapin Carpenter,	University of Penna.	1916
J. H. Smith,	University of Penna.	1918
Earl F. Henderson,	University of Penna.	1918
Arthur C. Dean,	Jefferson Medical School	1917
Louis F. Foster,	University of Penna.	1918
Arthur C. Bitter,	University of Penna.	1918
James W. Nixon,	University of Penna.	1918
David E. Smith,	University of Penna.	1918
Daniel C. Reyner,	University of Penna.	1918
Leslie O. Ashton,	Harvard Medical	1917
William H. Sprunt,	University of Penna.	1918
Albert R. McFarland,	University of Penna.	1918
William E. Costolow,	University of Penna.	1918
James B. Moloney,	Harvard Medical	1918

William E. McGarvey, University of Buffalo 1918
William P. Kroger, University of Penna. 1918
Ernest J. Dewees, University of Penna. 1918
Norman H. Taylor, Harvard Medical 1918
William R. Morrison, Indiana Univ. Med. School 1918
Emily P. Bacon, Johns Hopkins 1916
Alexander E. Burke, Georgetown University 1918

FAILED

University of Michigan 1918

AVERAGES OBTAINED*

Candidates by No.	Anatomy; Value, 100	Chemistry; Value, 75	Materia Medica, Pharmacology and Therapeutics; Value, 75	Obstetrics and Gynecology; Value, 75	Hygiene; Value, 50	Medicine; Value, 200	Surgery; Value, 200	Pathology; Value, 75	Bacteriology; Value, 50	Physiology; Value, 75	Medical Jurisprudence; Value, 25	Final Average
1	69	86.6	80.0	74.6	70	80.75	82.75	77.3	80	84.0	80	793.0
2	93	93.3	85.3	82.6	80	92.00	89.25	90.0	89	96.0	80	895.5
3	72	93.3	84.0	80.0	83	78.00	79.75	76.6	82	87.3	92	809.0
4	84	93.3	89.3	85.3	82	82.25	87.75	86.6	84	86.0	80	855.0
5	73	80.0	77.2	64.0	72	75.5	87.75	84.0	76	80.0	84	783.4
6	80	86.6	76.0	86.6	75	77.25	80.5	80.3	77	78.0	80	804.0
7	84	90.6	82.6	75.3	71	72.5	73.75	93.0	75	80.0	60	781.0
8	84	90.6	94.6	80.0	92	83.75	84.5	87.3	80	83.3	76	852.5
9	84	82.6	75.3	82.6	85	72.5	82.00	76.0	75	82.0	80	792.0
11	84	93.3	80.0	94.6	84	91.00	71.5	78.6	75	74.6	80	814.5
12	83	93.3	75.3	89.3	90	87.75	90.00	94.6	80	81.3	76	867.5
13	78	86.6	84.6	93.3	88	84.5	84.75	93.3	92	82.0	88	858.5
14	78	86.6	92.0	82.6	79	82.5	79.5	76.0	77	81.3	76	833.0
15	77	82.6	70.0	77.3	81	84.00	86.25	82.6	73	82.6	64	806.5
17	86	93.3	88.0	93.3	93	92.25	85.00	92.0	78	88.0	72	880.0
18	81	80.0	70.0	93.3	91	87.00	86.5	92.6	85	85.0	68	849.5
19	90	97.3	84.0	97.3	90	89.75	83.00	96.0	80	92.0	80	890.5
20	71	93.3	74.6	80.0	81	84.75	88.75	80.0	75	88.0	64	808.0
21	72	86.6	74.6	82.6	80	83.00	84.5	65.3	80	74.6	68	792.0
22	94	90.6	74.6	94.6	81	75.5	82.5	85.3	80	82.0	68	828.0
23	83	93.3	84.0	76.0	83	77.75	84.5	82.6	79	81.3	76	820.5
24	79	89.3	88.0	90.6	79	82.00	87.25	84.0	85	78.0	80	844.0
25	90	86.6	90.0	85.3	92	68.00	83.00	93.3	70	74.6	76	809.5
26	73	90.6	82.0	80.0	80	80.25	82.25	84.6	67	86.0	80	813.5
27	64	90.6	88.0	80.0	78	73.5	89.75	81.3	75	84.0	76	804.0
28	84	86.6	84.0	88.0	92	82.00	83.75	97.3	80	88.0	76	853.5
29	79	93.3	80.0	86.6	81	84.5	75.5	84.0	90	80.0	68	811.5
31	90	86.6	84.0	80.0	82	84.00	88.4	79.3	85	78.0	76	843.3
32	87	66.6	88.0	77.3	81	86.25	82.9	98.6	98	82.0	76	843.3
33	84	86.6	74.6	70.6	88	88.5	82.00	81.3	83	84.0	76	827.5
34	81	93.3	75.3	84.0	90	85.75	84.5	81.3	70	96.0	80	844.0
35	84	93.3	90.0	77.3	90	86.25	83.5	76.6	95	88.6	80	855.5
36	89	90.6	97.3	80.0	91	88.5	87.4	82.0	78	78.0	84	867.4
39	77	86.6	77.3	77.3	89	86.75	75.75	82.6	74	81.3	88	809.5
40	66	86.6	80.0	88.0	92	87.5	87.5	92.6	78	92.0	84	851.5
41	71	93.3	76.0	73.3	70	81.25	74.00	75.3	64	72.0	80	761.0
42	75	96.0	80.0	68.0	88	85.75	81.75	87.3	76	81.3	76	820.5
43	86	86.6	93.3	82.6	82	84.25	82.00	66.6	82	78.0	88	828.0
44	85	86.6	72.0	77.3	78	77.25	79.00	66.6	80	81.3	80	784.5
45	72	90.6	86.0	77.3	81	71.25	79.5	80.0	74	72.0	80	775.5
46	66	86.6	74.6	80.0	80	75.75	63.25	77.3	58	74.6	80	728.0
47	90	86.6	92.0	80.0	79	90.5	75.00	82.6	83	90.0	80	845 5
48	66	96.0	92.0	53.3	78	81.5	73.00	69.3	88	90.0	84	789 5
49	84	96.0	86.6	80.0	79	85.25	72.5	86.6	86	88.0	76	829 0
50	68	86.6	70.6	82.6	80	84.75	71.5	68 0	70	74.6	80	762.5
51	77	86.6	82.0	77.3	93	81.00	80.5	80.3	84	92.0	84	830 0
52	72	90.6	70.3	77.3	81	90.5	76.25	79 3	62	73.3	80	797.0
53	66	86.6	72.0	77.3	72	76.5	75.25	70.0	75	86.6	84	758.0
54	77	86.6	92.0	74.6	89	76.75	81.5	94 0	88	76.0	100	874.5
55	66	77.3	91.3	81.3	64	84.5	91.5	94.0	84	82.0	80	831.5
56	75	96.0	88.0	80.0	73	87.00	86.75	94.6	86	88.0	92	860.0
57	76	93.3	90.6	86.6	71	87.00	79.25	90.6	91	90.0	88	849.0
General aver. by sub.	70.1	81.1	75.3	74.0	73	75.4	74.5	76.3	72.5	75.5	72	

* The general average of the candidates is based on subject values as rated by the board.

EXAMINATIONS AND TIME ALLOWED

Subject	Kind of Examination	
	Written	Other, and Remarks
Anatomy	3 hours	Oral with prepared spec. 24 min. for each candidate
Chemistry	3 hours	Three hours laboratory in physiologic chemistry
Physiology	3 hours	Laboratory 2 hours
Pathology	3 hours	Laboratory exam., 20 min. each cand.
Bacteriology	2 hours	Laboratory 2 hours
Materia medea, pharmacology and therapeutics	3 hours	Laboratory 2 hours
Medicine	3 hours	Clinical lab., 1 hour each cand.; clinical med., 3 hours
Surgery	3 hours	Lab. op. surg. and applied anatomy, 3 hours; clin. exam., 2 hours
Eye, ear, nose and throat	.....	Clinical exam., 30 min. each cand.
Dermatology	.....	Clinical exam., 30 min. each cand.
Obstetrics and gynecology	3 hours	
Hygiene	2 hours	
Medical jurisprudence	2 hours	

The examination consisted of written, oral, laboratory and clinical tests. The questions asked were as follows:

ANATOMY

Written Examination.—1. Describe the knee-joint with overlying structures and muscular attachments in immediate vicinity. 2. Describe the peritoneum. 3. Give attachment, action and nerve supply of following muscles: coracobrachialis, pectoralis minor, plantaris, rhomboideus major. 4. Name nasal accessory sinuses and locate openings from each into nasal cavity. 5. In simple fracture of femur in middle third, give anatomic reasons for difficulty in retaining fragments in apposition.

Oral Examination.—This was conducted with the use of specimens of the brain, osseous system and internal organs, and specially prepared dissections demonstrating the gross anatomy of joints, and definite regions of the body; the identification of four specimens of histology under the microscope.

PHYSIOLOGY

Written Examination.—(Answer five questions): 1. Discuss the physiologic function of the pylorus in digestion. 2. Describe the origin and function of secretin. 3. Define periodic breathing, name the types of periodic breathing, discuss the causes of the same. 4. Discuss the propagation of the heart-beat in the mammalian heart. Define auricular fibrillation. 5. Illustrate by graphic tracings the effect on respiration, heart-rate and blood-pressure (a dog being used for demonstration). (*a*) Electrical stimulation of the vagus. (*b*) Intravenous injection of epinephrin (2 c.c. 1:100,000 solution). To what is the change in blood-pressure due? (*c*) Intravenous injection of digitalis (alcohol-free tincture). How does the blood-pressure curve differ from that produced by the intravenous injection of epinephrin? (*d*) Inhalation of amyl nitrite (tracheal cannula). Explain change in blood-pressure curve. 6. Describe in detail the physiology of the xanthine basis.

Laboratory Examination.—Each candidate was examined on tracings of the arterial and venous pulse from normal and abnormal cases, blood pressure readings, and heart sounds.

PHYSIOLOGIC CHEMISTRY

Laboratory Examination.—To each candidate the following specimens were assigned: 1. Four samples of urine. Make a complete qualitative examination (clinical and microscopic) and report results with conclusions. If sugar be found in any specimen determine the amount. 2. Two samples of gastric contents. Test for acids and if free hydrochloric acid be found estimate the amount. 3. Two samples of blood serum. Remove all proteins; prove that this has been done, and after the removal of the proteins ascertain whether or not nonprotein nitrogen exists in the specimens. State clearly in the report the methods employed and the conclusions drawn from these findings.

MATERIA MEDICA AND THERAPEUTICS

Written Examination.—(Answer five questions): 1. Name two organic preparations of arsenic, and give the dosage, mode of administration and indications for the use of each. 2. (*a*) Give the source and physical properties of salicylic acid. (*b*) Give three therapeutic uses of this drug. (*c*) Write a prescription containing a preparation of salicylic acid, with full directions to the patient, and indicate the dose intended. 3. (*a*) In which forms of heart disease should digitalis be used with caution, and why? (*b*) In which types of circulatory disturbance does digitalis exert its best therapeutic effect? 4. Name three drugs classed as antipyretics and explain the antipyretic action of each. 5. Discuss the relative value of iron and arsenic in anemia. 6. (*a*) Discuss the constipating effect of opium. (*b*) Describe the effect of morphin on the respiratory center. (*c*) Explain the analgesic effect of morphin.

PHARMACOLOGY

Practical Examination.—1. Into a lymph sac of one frog inject 1 c.c. of Solution A, into another, 1 c.c. of Solution B. Observe and briefly describe symptoms developing in the following fifteen minutes. Identify action exhibited: identify the drugs or the group to which each belongs. (Solution A was strychnin: B was chloral hydrate: strengths chosen so that symptoms developed in five to eight minutes.) 2. Into the right eye of Rabbit C have been instilled several drops of drug Solution C. Into the right eye of Rabbit D have been instilled several drops of drug Solution D. Note the drug and its action. (Solution C was cocain: D was atropin.) 3. Examine Tracing 1, showing arterial blood pressure and contractions of right ventricle, made with mercury manometer and myocardiograph, respectively. What is the drug and what structures have been acted on to produce these results? (Digitalis.) 4. Examine Tracing 2, showing arterial blood pressure and contractions of right ventricle. What statement can be made concerning the cause of right ventricle? What statement can be made concerning the cause of the fall in blood pressure in each case? To what group of drugs does each belong? Identify them if possible. (Nitroglycerin; chloroform.)

OBSTETRICS AND GYNECOLOGY

Written Examination.—1. Describe the normal mechanism of labor in a face presentation, and outline the treatment: (*a*) When the case is seen early in labor. (*b*) When seen late in labor. 2. Diagnosis, treatment and possible sequelae of hydatidiform mole. 3. What are the causes and describe the diagnostic signs of threatened rupture of the uterus? What is the treatment after rupture has occurred? 4. Describe two varieties of contracted pelvis and the technic of pelvic menstruation. 5. Give in detail the local and general treatment of puerperal sepsis when the patient is seen early. 6. What are the diagnostic signs of an intraligamentous cyst and describe the special technic of an operation for its removal. 7. Describe the symptoms and the nonoperative treatment of subinvolution of the uterus complicated by retrodisplacement.

Oral Tests.—During the written examination, each candidate was required to make demonstrations on the manikin and to explain different obstetric operations.

MEDICINE AND MEDICAL JURISPRUDENCE

Written Examination.—1. (*a*) Describe the Stokes-Adams syndrome, and the mechanism of heart-block. (*b*) Mention the symptoms and physical signs of partial heart-block. (*c*) Treatment of a case of partial heart-block at age 55; with enlargement of the heart, myocardial degeneration, and arteriosclerosis, all of moderate degree; and with symptoms of beginning lack of compensation. 2. A man of 28 years, employed in the manufacture of grinding wheels, presents signs of slight dulness, bronchovesicular respiration, and increased transmission of voice sounds

at the right apex of the lung. No râles are heard. Tubercle bacilli are not found in the sputum. (*a*) Discuss the diagnosis, and state what symptoms and other physical signs will, if found to be present, affect the diagnosis. (*b*) Complete a clinical picture by a consistent selection from the symptoms and physical signs mentioned by you in (*a*); then state your diagnosis and outline treatment. 3. A man of 50 years has well-advanced chronic interstitial nephritis; a moderately enlarged, but well-compensated heart, without murmurs; and moderate arteriosclerosis. Systolic blood-pressure, 210; diastolic, 120. (*a*) Outline diet, medicinal treatment, and general regimen—giving your reasons briefly. (*b*) Prognosis as to probable duration and cause of death. 4. A male patient of 30 has had recurrent attacks of indigestion accompanied by constipation and griping abdominal pain. (*a*) On what criteria would you decide whether or not this is a case of chronic appendicitis? (*b*) assume that the diagnosis of chronic appendicitis is the most probable one—discuss briefly the question of operation and the basis on which you would advise surgical operation. 5. (*a*) Define leukemia and discuss the classification of the varieties of this disease. (*b*) Give the blood picture of two varieties of leukemia. (*c*) Discuss the probable course, prognosis and duration of each case presented in (*b*). 6. During an epidemic of acute poliomyelitis you are called to attend a child of 6 years, acutely sick with fever and vomiting. (*a*) Describe the procedure to determine whether this disease exists. (*b*) On what results of such investigation would you establish a positive diagnosis? (*c*) Discuss the treatment of any resulting paralysis by medicinal means, electricity, and physical therapy at different stages of the paralysis. 7. Give the incubation period, and mention three important diagnostic points in each of the following diseases: (*a*) scarlet fever; (*b*) measles; (*c*) smallpox; (*d*) diphtheria; (*e*) typhoid fever. 8. A case of cerebrospinal meningitis is discovered at a mobilization camp. Describe the measures that should be adopted to prevent the spread of the disease. 9. (*a*) State how you would determine that a person is actually dead. (*b*) What conditions simulate death? 10. (*a*) Define an hallucination and a delusion, indicating the differences between the two. (*b*) Give an illustrative example of each.

Clinical Laboratory.—Each candidate was required to describe and diagnose the following: 1. Urine sediments; report findings. 2. stained smears from a group containing: pernicious anemia; acute lymphatic leukemia; splenomyelogenous; lead poisoning; tertian malaria. Diagnose and give reasons for same. One stool washing from a group of three, containing in addition to the usual vegetable debris, meat fiber, etc., the following ova: *Taenia saginata; Ascaris lumbricoides; oxyuris vermicularis; Uncinaria americana; Ascaris lumbricoides; Trichocephalus trichiuris.*

Clinical Examination.—This was held in the wards of the Philadelphia General Hospital, each candidate being assigned a long case for a physical examination, asked for the laboratory or special findings, make his conclusions, and stand a quiz on these. Following this the candidate was assigned to short cases representing some well defined condition, as pleural effusion, enlarged heart, aneurysm, large liver, ascites, etc., to test physical examination methods. The clinical conditions included; aortic insufficiency, splenomegaly, subacute endocarditis, severe anemia; syphilis, double aortic disease, dilated hypertrophy of heart, arteriosclerosis, chronic nephritis mitral insufficiency, chronic interstitial nephritis, hypertrophied heart, lungs, gastric syphilis aneurysm, old tuberculosis, cardiac asthma, myocarditis, acute articular rheumatism, tuberculosis and effusion, essential asthma, cardiorenal, pernicious anemia, carcinoma of stomach, diabetes, hypochondriasis, acute rheumatism, nephritis, auricular fibrillation, ascites, chronic rheumatism, aortic regurgitation, aortic stenosis, mitral regurgitation, enlarged liver, emphysema, aortic and mitral diseases, old bronchitis, thickened pleura.

HYGIENE

Written Examination.—1. Describe a sanitary dairy. 2. Discuss approved methods of ventilating and heating a hospital in a temperate climate. 3. Discuss the selection, construction and administration of a detention camp for the control of bubonic plague. 4. What are the essential factors in providing for the hospital care of contagious diseases—construction, organization and administration? 5. Contrast the insect transmission of typhoid fever and malaria.

SURGERY AND DERMATOLOGY

Written Examination.—(Answer seven questions in surgery and one in dermatology.) 1. Diagnosis, differential diagnosis and treatment of concussion of the brain. 2. Diagnosis, differential diagnosis and treatment of carcinoma of the tongue. 3. Discuss deep cervical suppuration. 4. Discuss the prognosis of gunshot injury of the solid organs of the abdominal cavity and describe the treatment of gunshot wound of the kidney involving the hilum. 5. Discuss the differential diagnosis between an infected gallbladder and chronic gastric ulcer. 6. How is the occurrence of ankylosis after injury to a joint explained and give in detail the surgical methods for restoration of function in confirmed ankylosis of a joint. 7. Discuss the surgical management of a compound, comminuted, infected fracture of the middle third of the humerus. 8. Discuss tetanus.

DERMATOLOGY

9. Give the differential diagnosis (skin only): (*a*) Between smallpox and papular syphilis; (*b*) Between smallpox and chickenpox. 10. Describe: (*a*) vegetable parasitic disease with general distribution. (*b*) one animal parasitic disease with general distribution. (*c*) give differential diagnosis between diseases described in A and B.

SURGICAL PATHOLOGY

During the written examination each candidate was given a laboratory examination in surgical pathology. The specimens were selected from the following: carcinoma of breast, chronic cystic mastitis, fibro-adenoma of breast, acute calculus cholecystitis, colloid goiter, hypertrophy prostate, carcinoma of jaw.

Laboratory Examination in Operative Surgery.—Each candidate was given one operation on the cadaver selected from the following list: trephine; tracheotomy; thoracotomy; appendectomy; lateral intestinal anastomosis; inguinal hernia; suprapubic cystotomy; amputations of arms, forearms, fingers, thigh, leg, and foot; and also a practical examination in regional anatomy.

Clinical Examination.—This was held in the wards of the Philadelphia General Hospital, each candidate was given at least three cases and these were chosen from the following: fracture of head of humerus; fracture of humerus, involving musculospiral nerve; fracture of hip; fracture of tibia and fibula; fracture of femur; supracondylar; leg ulcers; abscess of the neck; cervical adenitis with bilateral sinuses; tuberculosis of hip; destruction of head and neck of femur; tuberculosis of knee; tuberculous glands of neck; gangrene of stump from recent amputation; contraction from infected hand; old curvature of spine; bad union of Pott's fracture; dislocation of radius; dislocation of hip joint following arthritis of hip joint following influenza; osteomyelitis of femur; chronic empyema; epigastric median hernia; operated hernia; mass in scrotum; inguinal hernia; umbilical hernia; carcinoma of stomach; gastric ulcer; appendicitis; arthritis deformans (chronic); monarthritis of knee, gonorrheal; gallbladder disease (cholelithiasis).

PATHOLOGY

Written Examination.—(Answer five questions.) 1. Describe the mode of spontaneous cessation of hemorrhage, indicating the factors involved; what differences in the fate of the escaped blood in a nonfatal hemorrhage into the peritoneal cavity as contrasted with a hemorrhage into the midst of the body tissues. 2. Describe the steps of formation and the gross and minute features of the contents and wall of a frank staphylococcic abscess; indicate what is meant by the "pointing" of an abscess and how accomplished. 3. Name at least three types of "benign" and an equal number of "malignant" neoplasms; what features are concerned in the "malignancy" of a tumor; discuss briefly in what ways and under what circumstances a "benign" tumor may seriously affect the well-being of the life of the host. 4. What structural changes are believed essential to the establishment of "pancreatic diabetes mellitus", what noxious substances are present in the blood underlying diabetic convulsions and coma, and how are they believed to act to induce such phenomena. 5. Describe the gross features of at least one anatomic variety of bronchiectasis; what factors are involved in the causation and development of bronchiectases; what types of respiratory symptoms are they apt to induce; and what serious complications are to be feared from the existence of bronchiectases? 6. Describe grossly and minutely a kidney the seat of a pyelonephrosis, supposing, as frequently, the condition is secondary to a suppuration in the lower urinary tract or vicinity; indicate the paths of the "ascending infection" and how are the pyogenic organisms distributed to and into the kidney and pelvis.

Laboratory Examination.—During the written examination each candidate was given gross specimens and microscopic sections chosen from the following: acute fibrinous pericarditis; chronic fibrinous adhesive pericarditis; anthracosis of lung; several specimens of tuberculosis of lungs; atrophic cirrhosis of the liver; intussusception of small intestine; tuberculous mesenteric lymph nodes; melanotic sarcoma of liver; multilocular glandular cystoma of ovary; aneuryams of aorta; senile and syphilitic arteriosclerosis; lobar pneumonia; sclerotic mitral valvulitis (buttonhole mitral); carcinoma of esophagus; acute fibrinous pleurisy; chronic fibrous pleurisy; hypertrophy of heart; chronic interstitial nephritis; anemic infarct of spleen; scirrhous carcinoma of stomach; uterine fibroid.

Microscopic: bronchopneumonia; miliary tuberculosis of lung; cirrhosis of liver; acute fibrinous pericarditis; scirrhous carcinoma of stomach.

BACTERIOLOGY, IMMUNITY AND MEDICAL ZOOLOGY

Written Examination.—1. (*a*) Briefly discuss, without giving technic, the question of laboratory diagnosis of typhoid fever, especially as to relative value of different methods and suitable period for employment of same. (*b*) Give sources of milk contamination to be considered in the epidemiology of a typhoid fever outbreak. 2. *Plague.* (*a*) Give more important morphologic and cultural characteristics of the plague bacillus. (*b*) Give mode of infection in (1) bubonic plague, (2) pneumonic plague. (*c*) Give laboratory procedures necessitated in the diagnosis of bubonic plague. 3. (*a*) Give the names of bacteria and molds which may be found in a smear made from the throat, and which of these would fail to grow in culture on a Löffler blood serum slant. (*b*) What findings in a smear establish the diagnosis of Vincent's angina? 4. (*a*) What do you understand by (1) antigen, (2) passive immunity, (3) macrophage, (4) immune body, (5) homologous serum? (*b*) Give a general idea of the method of establishment of the diphtheria antitoxin unit. 5. *Tapeworms.* (*a*) Give names and general points of distinction of the four common tapeworms of man. (*b*) Give source of infection for the large human tapeworms. (*c*) Is man the intermediate or definitive host for the cestodes above noted in (*b*)?

Laboratory Examination.—The examiner is provided with tubes, plates, etc., of various standard culture mediums. The condition is examined as to the composition, uses, technic of inoculation and study of same. There are also provided plates of plain agar, blood agar, etc., showing colonies, and the candidate is examined as to his ability to recognize and discuss colony characteristics with the unaided eye and magnifying glass. The candidate is also examined as to interpretation of gas and acid production on fermentation tubes, litmus milk, etc. Various serologic preparations, such as Wassermann or other complement fixation tests, microscopic agglutination, precipitin reactions, etc., are provided and interpretation required of same. Specimens of intestinal parasites and ova of same, together with stained smears of blood preparation, of parasites will be given the candidate for identification.

A British View of the Needs of Medical Education

In a memorandum published late in 1918 Sir George Newman, chief medical officer of the London Board of Education, made the following statement relative to the most essential needs in medical education as revealed by the world war:

"There must be from time to time, and in accordance with the direction and establishment of new medical knowledge or the requirements of the times, reasoned effort to eliminate the unnecessary and the redundant and to concentrate upon the essential things. . . . All through the curriculum we need to impose less on the memory of the student, and seek rather to draw out his mind and faculties, his interest and perception, compelling him to do things for himself with his own hands and his own head, and to observe and experiment, to study intensively rather than extensively, to think and wonder and investigate for himself. This is to educate him and give him independence, to add experience to knowledge

and wisdom to experience, and above all to foster the love of learning." Sir George emphasized the following points:

(*a*) Be strong in physiology, anatomy, and pathology—the bed rock of medicine.

(*b*) Have a thorough training in physical signs and clinical examination.

(*c*) Concentrate more on outpatient department, on children's ailments, on subjective symptoms and on anything which will bring the student into personal touch with the beginnings of disease.

(*d*) Pay wider attention to the question of therapeutics, nonmedicinal as well as medicinal.

(*e*) Lay special stress upon preventive medicine, dealing with ordinary as well as infectious diseases. In other words death under fifty must be prevented.

(*f*) Provide for efficient postgraduate teaching.

Book Notices

THE OPERATIVE TREATMENT OF CHRONIC INTESTINAL STASIS. By Sir W. Arbuthnot Lane, Bart, C.B., Consulting Surgeon to Guy's Hospital. Fourth edition. Cloth. Price, $5. Pp. 328, with 133 illustrations. New York: Oxford University Press, 1918.

This edition is simply another impression of the former edition so far as the work done by the author is concerned. The only difference between the two editions is the addition to the present one of a few short chapters by various writers which are intended to lend support to the theory advanced by the author. All of the extravagant claims made in the former edition were thoroughly reviewed at the time, and as there has been no change made in the views of the author and no new evidence offered to support those views, it is unnecessary to repeat what was said concerning them in the former review.

MALARIA AND ITS TREATMENT IN THE LINE AND AT THE BASE. By Capt. A. Cecil Alport, R.A.M.C., M.B., Ch.B., Officer in Charge of Medical Division of the 28th General Hospital, Salonika. Cloth. Price, $6. Pp. 279, with illustrations. New York: William Wood & Co., 1919.

This book is based on personal observations and experiences. It was written under active service conditions when the author had practically no access to the literature. The requirements of the busy practitioner have been kept in view, the language is simple, and there are numerous instructive illustrations. The chapters on the clinical features of malaria and on the treatment of its various forms contain many accurate and detailed clinical histories, and should be of value and interest to physicians in malarial districts. The price seems excessive.

ROENTGEN INTERPRETATION. A Manual for Students and Practitioners. By George W. Holmes, M.D., Roentgenologist to the Massachusetts General Hospital, and Howard E. Ruggles, M.D., Roentgenologist to the University of California Hospital. Cloth. Price $2.75. Pp. 211 with 181 illustrations. Philadelphia: Lea & Febiger, 1919.

This book is intended to give the essentials of roentgen interpretation. It is designedly elementary. There is a mere outline of each of the subjects. The descriptive text covers not more than ninety pages, though the subjects include the roentgenography of bones with their many diseases—one half of the book—of the heart, lungs, stomach, bowel, kidney, bladder, in fact, the entire body. One cannot expect finished details in any branch to be included in such a small compass; one must consult larger works or works on special topics. The book, however, abounds in valuable suggestions, helpful even to the expert. And its conservatism and caution are to be most warmly commended. No rash conclusions are drawn from roentgenograms as to gallstones, pulmonary tuberculosis or inflammatory lesions of bone; the numerous possibilities of error are constantly kept in sight. A wise emphasis is placed on the necessity of an understanding of normal anatomy and of pathology before the student or practitioner attempts to interpret roentgenograms. And the same position is taken that the roentgenogram is only one method of diagnosis and is, if properly used, to be linked with others, such as bedside and laboratory examinations. We note very scant reference in the bibliographic lists to other than American or English articles. This is a serious lack, particularly if it implies that French, German and other continental writers have not been freely consulted. The illustrations are, in general, good; some are poor. More lettering, the more frequent use of arrows indicating lesions, and legends that are more descriptive would make the illustrations more helpful—they are for students and untrained physicians, it should be remembered. Several typographic errors attracted our attention. Some incorrect Latin forms have been used, as *pelvices, diverticulae*. And such expressions as "specific stomach," "chronic appendix," are too colloquial to find a place in a book, supposedly written in dignified and correct English.

Social Medicine, Medical Economics and Miscellany

REPORT OF THE PENNSYLVANIA HEALTH INSURANCE COMMISSION

The report of the Health Insurance Commission of Pennsylvania, just issued, is necessarily a limited one. The commission was directed by the act of July 25, 1917, to investigate "the extent, loss and causes of sickness and accidents of employees and their families not covered by the workmen's compensation act; the adequacy of the present methods of treatment and care of such sickness or injury; the adequacy of the present methods of meeting the losses caused by sickness or injury, either through insurance or otherwise; the influence of working conditions on the health of employees, and the methods of sickness prevention with a view to recommending ways and means for the improvement of the health of employees and their protection against sickness and accident," and for all this work the legislature provided the liberal appropriation of $5,000. Naturally, the commission was not able to make any investigation, but confined itself to collecting and arranging material gathered by other agencies. It reports that there are constantly ill in the state more than 385,000 employees, of whom approximately 140,000 are subjects of severe illness and 245,000 less serious. The average loss of working time on account of sickness is at least six days per annum for each employee. Regarding physical fitness, Pennsylvania had the highest percentage of any state in the Union, of men rejected for physical reasons in the draft, 46.67 per cent. of young men examined between the ages of 21 and 31 years being found physically defective. The average for the whole country was 29.11 per cent. Death rates in Pennsylvania are also higher than the average, the infant death rate being particularly high in the large cities. In 1917, the infant death rate for Philadelphia was higher than that of New York, Brooklyn, Boston or Chicago, while Pittsburgh ranked second among the cities of its class. The state as a whole had an infant death rate in 1916 of 114 per thousand, as compared with an infant death rate of 101 per thousand for the registration area.

Regarding financial loss due to sickness, the commission estimated the wage loss to employees at $33,000,000 a year. The losses to employers consist of decreased production and cost of labor turnover. During the influenza epidemic, anthracite coal production in Pennsylvania, the largest coal producing state in the Union, dropped 500,000 tons in a few days. The losses to the community consists of direct money loss and social loss. The state spends more than $6,000,000 each year directly for the treatment of sickness, and $4,000,000 for the maintenance of institutions for the care of defectives. In addition to public institutions, 175 hospitals report that in 1916, 57 per cent. of their patients were treated free. The commission finds that wage earners are not receiving satisfactory medical care. Hospital accommodations in the state average a little more than one-half the recognized minimum of five beds per thousand. Approximately one fourth of those actually disabled by sickness never receive medical care. Insurance protection against sickness was

found among only 30 per cent. of employees. The lower the wage group, the least likely the insurance protection. Such insurance as was carried seldom provided proper medical care. Lodges, fraternal societies and trade union funds afford little better protection.

The commission is of the opinion that industry is clearly responsible for a large proportion of the illness among employees; that fully one half of the existing sickness could be eliminated by proper preventive methods; that from 70 to 75 per cent. of the schoolchildren of the state are physically defective, and that most of the defects are or were correctable; and that a large number of communities in the state have no active health work nor adequate appropriations for health activities. Regarding responsibility, the commission holds that this rests on three groups, the community, the industry and the individual, and that at present these groups are meeting the losses for illness in unequal share. The burden on the individual is often disastrous and out of proportion to his individual responsibility or ability to carry it, and some means of a just distribution of this burden should be found. There is in Pennsylvania today, in the opinion of the commission, urgent need for a program that will provide efficient care for employees and their families when ill and preventive measures that will as far as possible prevent illness and increase the health and vigor of the citizens of the state. No definite health insurance measures were recommended by the commission. Instead, it recommended that a new commission be appointed to continue the investigation and to study proposed and existing schemes of health insurance in this and other countries with a view to formulating definite measures. The appropriation of $5,000 for such a commission was, of course, ridiculously inadequate. The problem as shown by the report of the commission would justify the expenditure of any amount of money for a clearer understanding or a solution of the problem.

SCHOOL HYGIENE, CHILD LABOR AND HOUSING IN ITALY

A report on school hygiene, child labor and housing in Italy has just been issued by the Commission for Tuberculosis of the American Red Cross in Italy following eight months' work of investigation carried on with groups of Italians. The fields selected for study were chosen because in them are found the conditions that are the underlying causes not only of tuberculosis but also of other maladies, and because it was realized that a knowledge of what had been accomplished in the great social movements of the country would be indispensable to an intelligent promotion of the activities of the commission.

The objects, in the field of school hygiene, were to promote the physical examination of all schoolchildren, the correction of physical defects, the sanitation of the school environment, the teaching of hygiene, and the establishment of health habits in the school age. The commission enlisted in the work the Italian School Hygiene Association, promising financial support of any worthy project. A comprehensive study of the schools was made and an ideal program formulated. The sympathy of the ministry was secured, propaganda widely disseminated, and arrangements made for the publication of children's textbooks on hygiene, to be used in the schools.

Child labor, it was found, does not constitute a separate social problem in Italy. There is little legislation directed against it, as such; what regulations exist are not enforced. The commission, in its extensive study of conditions, compiled the inadequate available statistics pertaining to child labor, and recommends, as Italy's chief needs: laws to govern agriculture, commerce and homework; improvement in health rules; medical examination; raising of the working age, which is 12 at present; shortening of hours, and strengthening of the inspecting force.

The housing situation is an anomaly. Conditions in larger cities could hardly be more wretched. Age, damp, filth, dark and overcrowding characterize the dwellings. Toilet facilities, baths and means of garbage disposal are urgent necessities to relieve the filth of surroundings and make cleanliness possible. Yet more actual work is being accomplished in Italy in providing better housing than in any other country. Most comprehensive plans of destruction and reconstruction are being put in execution in several cities. The commission urges as the primary and most essential need a campaign of education in habits of personal cleanliness.

The report emphasizes the necessity of laying a foundation for international public health activities.

Medicolegal

Evidence and Instructions in Malpractice Case

(Dameron v. Ansbro (Calif.), 178 Pac. R. 874)

The District Court of Appeal of California, Third District, in reversing a judgment that was rendered in favor of the defendant, says that the plaintiff, a physician, sued the defendant for professional services, and for room, board and nurse hire, while the defendant wanted damages for alleged malpractice. The defendant, in a collision with a train, had suffered ten fractures of the legs and arms, and was, at his own request, taken to the plaintiff's hospital. He claimed that when, after nearly ten weeks of otherwise successful treatment, the plaintiff undertook to reduce adhesions in the knees, he negligently rebroke some of the original fractures. But one carefully and impartially reading the voluminous record could hardly resist the conclusion, the court thinks, that the verdict ought to have been for the plaintiff physician. At any rate, the jury should have been instructed, as requested, that he was entitled to recover the reasonable value of the use of the room and of board and nurse hire, regardless of the question whether he used ordinary care and skill in the treatment of the defendant.

Probably the most serious error consisted in giving the jury an instruction which completely ignored the test fixed by the law based on the methods and practice of the school to which the plaintiff belonged, and permitted the jury to apply its own standard of care or that of each individual juror to the treatment accorded the defendant by the plaintiff. It made no difference that other instructions may have presented the correct standard, as that would simply be an instance of an irreconcilable conflict.

As to the nature of the treatment required and the amount of force that might be exercised to break such adhesions as existed in this case, manifestly, only an expert could properly determine and testify. But an instruction proposed was faulty as implying that only an expert could testify as to the amount of force that actually was used and the method of treatment that was actually employed. As to what occurred, of course, the nonexpert was as competent as the expert witness. If there had been no dispute as to the facts it would have been a question solely for the physicians and surgeons. But it was not error to refuse the instruction, there being a conflict as to the facts.

An instruction was requested to the effect that the question of whether the plaintiff was negligent in his treatment of the defendant was to be determined by finding whether or not he possessed and used that degree of skill and learning possessed and used by physicians of the same school practicing in the same or similar localities. Such standard is clearly established by the authorities, and the trial court might well have given that specific instruction, even if it was substantially covered by other instructions that were given, when construed together.

Considerable latitude must be allowed in the choice of facts as the basis of hypothetic questions, and if the question is fair, and understandable by the witness, it is not to be excluded because it does not comprehend all of the important facts in the case; and if objection is made to it because it does not, the objection should specify the additional facts which ought to be included. Declarations of the physician at the time of the treatment are admissible in evidence, and may be included in a hypothetic question; but statements of

an assisting physician "to go easy," etc., should be left out, being incompetent.

This court does not understand that the plaintiff was denied any legal right by not being allowed to illustrate his testimony by means of a human skeleton. It is a matter left to the sound discretion of the court. No doubt such object may often be properly used to make more intelligible the testimony of an expert. It falls within the same category as pictures and diagrams.

Evidence that the plaintiff was a member of a county medical association was not admissible for the purpose of showing that the association protected any member in litigation brought against him in a case of the present character.

A rehearing was denied by the Supreme Court of California.

Evidence of Physician's Bill

(Quirk v. Metropolitan St. Ry. Co. (Mo.), 210 S. W. R. 106)

The Kansas City (Mo.) Court of Appeals, in affirming a judgment in favor of the plaintiff for medical attention and other damages suffered by him on account of injury to his son, holds that the trial court did not err in admitting in evidence a written statement, consisting of the physician's bill, obtained from the physician's bookkeeper. The court says that the physician amputated the boy's leg and treated him for several months. The plaintiff went to see the physician to get his bill, but the physician was out of town, the plaintiff got the bill from the physician's bookkeeper, and this was introduced in evidence. This court thinks this statement was admissible as tending to show the amount of the bill. The physician's bill amounted to $192. The physician was out of town at the time of the trial, and the plaintiff was allowed to testify, over the defendant's objections, that the bill was reasonable. The objection to the testimony was that no one but the physician was competent to testify as to the reasonableness of the bill, and that the witness' answer was a conclusion. The court thinks neither objection was sufficient. Of course, other competent witnesses could testify as to the reasonableness of the bill, and there was nothing to show that the witness was not competent to give his conclusion. There was no objection on the ground that it had not been shown that the witness was qualified to testify as to the reasonableness of the bill. There was also nothing in the contention that the physician's bill was barred by the statute of limitations. This court did not find that the point was raised in the lower court, but, aside from that, only the plaintiff could raise that point against the bill, as the bill was not barred unless the plaintiff chose to raise it.

Proper Time for Roentgen-Ray Evidence

(Van Tinder v. Birmingham Railway, Light & Power Co. (Ala.), 80 So. R. 858)

The Supreme Court of Alabama, in affirming a judgment in favor of the defendant in this personal injury case, says that the plaintiff urged that a new trial should be granted because of newly discovered evidence resulting from a roentgen-ray examination of her back showing the nature and character of her injury and its probable cause. But the court does think that this was a good ground for granting a new trial, for one reason, because it is not persuaded that due diligence was shown in obtaining this roentgen-ray examination. The plaintiff relied, among other things, on permanent injuries to her spine, and it was but fair to herself, the defendant, and the court that she should have obtained and produced the best evidence on the subject; and the reasons for resorting to a roentgen-ray examination were as important before as after the trial. It is a matter of common knowledge that in cities the use of the roentgen ray for the discovery and diagnosis of internal injuries and abnormal conditions of the human body is of common occurrence. True, it may incur some trouble and extra expense, but the trouble and expense should be no greater before than after the trial, and the reasons and necessities for them should be as imperative for the original trial as for upsetting or overturning the verdict of a jury after it has passed on the issue to which the examination relates and which was contested on the trial.

Society Proceedings

COMING MEETINGS

American Academy of Medicine, Harrisburg, Pa., Sept. 23.
American Academy of Ophth. and Oto-Lar., Cleveland, O., Oct. 16-18.
American Assn. Medical Milk Commissioners, New Orleans, Oct. 27-30.
American Assn. of Electro-Therap. & Radiol., Philadelphia, Sept. 16-19.
Am. Assn. of Obstetricians and Gynecologists, Cincinnati, Sept. 15-17.
American Assn. of Railway Surgeons, Chicago, Oct. 15-17.
American Public Health Assn., New Orleans, Oct. 27-30.
Colorado State Medical Society, Denver, Oct. 7-9.
Delaware State Medical Society, Dover, Oct. 13-14.
Indiana State Medical Assn., Indianapolis, Sept. 24-26.
Medical Society of the Missouri Valley, Des Moines, Sept. 18-19.
Minnesota State Medical Assn., Minneapolis, Oct. 2-3.
Mississippi Valley Medical Assn., Louisville, Ky., Oct. 21-23.
New Mexico Medical Society, Albuquerque, Oct. 3-4.
Pennsylvania State Medical Society, Harrisburg, Sept. 22-25.
Vermont State Medical Society, Burlington, Oct. 9-10.
Wisconsin State Medical Society, Milwaukee, Oct. 1-3.

AMERICAN SOCIETY FOR CLINICAL INVESTIGATION

Annual Meeting, held in Atlantic City, N. J., June 14, 1919

(Concluded from page 787)

Studies on Malaria Control

DR. C. C. BASS, New Orleans: The frequency of malaria infection without recognized symptoms was compared with the frequency of recognized attacks in an area of great prevalence. A malaria survey was made of 31,459 persons, practically everybody living in an area of 328 square miles in Bolivar County, Miss. Bolivar County is representative of the most heavily infected malaria section of the United States. Of the 31,459 persons included in the malaria survey, 40.30 per cent. gave positive histories. Blood examination of these revealed malaria parasites in 28.96 per cent. There were 59.70 per cent. who gave negative histories. Of these, 15.93 per cent. were found positive on blood examination. History of attacks alone cannot be depended on to indicate the presence of malaria infection. It indicates only 55.09 per cent. of the existing infection.

Metabolism in Leukemia and Cancer During Radium Treatment

DR. THOMAS ORDWAY, Albany, N. Y.: The application of radium over the enlarged spleen in leukemia exerts a marked influence on the protein metabolism, increasing the protein constituents in the urine, notably total nitrogen, urea, ammonia, and also to a very marked degree, the phosphates. The changes in the nitrogenous metabolism depend on the amount and nature of tissue autolyzed. Changes in the urine, as a result of radiation, are due, in part at least, to the products derived from the autolysis of the abnormal tissue under the influence of the radiation from radium. Only one patient showed systemic reaction because of the radiation, and in this instance the nitrogenous substance in the urine did not show as excessive increase as in leukemia which showed no general symptoms of toxemia.

Significance of Abnormalities in Form of Electrocardiogram

DR. G. CANBY ROBINSON, St. Louis: Certain abnormalities in the form of the electrocardiogram are recognized as evidence of faulty conduction of the cardiac impulse through the ventricles. These abnormalities consist of a prolongation of the time required to complete the first series of waves, the Q-R-S group of the ventricular part of the electrocardiogram and notching of the main wave of the group. I have seen cases which seem to prove that faulty conduction through the ventricles may depend on what has been termed functional fatigue. In one case, distinct improvement in the ventricular conduction followed slowing of the heart rate, when longer diastolic pauses were present. The rate of recovery of conduction was observed also in this case to become more rapid with improved circulatory efficiency. I believe that the disturbance of intraventricular conduction is

the result of the presence of acid metabolites in the ventricular structures, and that sclerosis of the coronary arteries and, perhaps, other lesions causing an insufficient blood supply to the ventricles are responsible for the presence of the acid metabolites, as it has been shown that these accumulate whenever the oxygen supply to muscle is inadequate. This hypothesis renders an anatomic lesion in the subendocardial structures unnecessary to account for the disturbance of the intraventricular conduction, although the effect of acid produced in the muscle on conduction is still open to question.

DISCUSSION

DR. HENRY SEWALL, Denver: The toxic origin of cardiac irregularity noted by Dr. Robinson suggests to me phenomena presented by a case I have followed for many years. The patient, a physician and a "tuberculosis cure," suffered a moderately severe attack of typhoid in 1896, at the age of 41. Following this, a "typhoid rib" gave trouble for a year or two, but yielded to curettement. During convalescence, pus and blood were passed with the urine, their origin being traced to the prostate. A rich culture of colon bacilli was made from the pus. The ingestion of hexamethylenamin gave remarkable relief and the abscess gave no trouble, except for occasional exacerbations at widely separated intervals. The succeeding years were marked, however, by much distress in the way of diffuse aching pain, myalgia, headache, nervousness and periodic prostrations with active sore throat in which the streptococcus was the chief offender. As nearly as can be remembered, shortly after recovery from the typhoid, the pulse began to be irregular at times, both in rhythm and in strength. The irregularity finally developed a character marked by a succession of from two to seven rapid beats of rate about 90 per minute, followed by a short pause, the next series being initiated by a beat much stronger than its successors. The irregularity usually subsided under mental excitement, physical exercise or with slight alcoholic stimulation. The pulse when regular ran about 70 per minute. In the spring of 1919, active symptoms led to examination of the prostate, and pus was expressed from it in abundance, the infective organism being the colon bacillus. Great improvement followed periodic massage of the organ. Since this treatment was begun, about four months ago, the pulse rate has been perfectly regular, with a rate of about 68, and the rheumatic symptoms have disappeared completely.

DR. J. C. MEAKINS, Montreal: The cases reported by Dr. Robinson are of great practical value in the interpretation of ventricular phases of the electrocardiogram. Such cases are not rare, and all variations may be found of the ventrciular complex, from the slightly abnormal to those showing all the not rare, and all variations may be found of the ventricular interest in these cases, as pointed out by Dr. Robinson, lies in their temporary character, and seems to afford evidence of a more subtle change in the ventricular conducting system than that of gross anatomic damage.

Immunologic Experiments with Streptococci from Influenza

DR. E. C. ROSENOW, Rochester, Minn.: From a study of the effects of intratracheal injection of green-producing streptococci isolated in influenza and the accompanying pneumonia, we have found a strain or strains which possess marked and peculiar virulence. With these, the picture of influenza has been closely simulated in animals. A monovalent serum has been prepared in a horse by the injection of one strain isolated from the blood in a fatal case. The agglutinating power of this serum, type pneumococcus serum, hemolytic streptococcus serum, and normal horse serum, has been tested against numerous strains isolated from the sputum, throat, blood and lung exudate in cases of influenza. Specific agglutinations with the monovalent serum have been obtained in a large number of cases of influenza. The cases studied came from widely separated communities, most of the negative agglutinations occurring when the cultures were made during convalescence. However, this was true in a few instances in the early part of typical attacks. This specific strain, according to this test, tends to disappear promptly during convalescence, and is rarely found in normal throats. Some of these strains, just as has been found to be the case with the streptococcus from poliomyelitis, lose their specific character promptly on cultivation, while others remain susceptible to specific agglutination months after isolation. Most of the specific strains do not ferment inulin and are not bile soluble. The agglutination experiments showed that the green-producing strains of this streptococcus from influenza are immunologically identical, or closely related. Single highly agglutinable strains have been found to absorb the specific agglutinins from the serum for all the strains. Non-agglutinating strains, including Type II pneumococci, remove little or no agglutinin. According to these tests, therefore, it appears that among the green-producing streptococci or diplostreptococci in influenza there is present a strain that has pandemic characteristics.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Diagnosis, New York City

April, 1919, **11**, No. 4

*Case of Human Rabies. J. C. Regan and A. Silkman, New York.—p. 237.
Diagnosis of Arteriosclerosis from an Ocular Standpoint. C. A. Clapp, Baltimore.—p. 257.
Symptoms of Hyperthyroidism Observed in Exhausted Soldiers. W. Johnson, R. A. M. C.—p. 260.

Case of Human Rabies.—Several points of value are emphasized by Regan in the discussion of his case. For instance: The best method of treating bites of suspected rabid animals is by cauterization with nitric acid which by virtue of its power of diffusibility and penetration may destroy the virus in cases in which other chemicals would have no effect. It is especially valuable in the cauterization of bites treated late. It produces little scarring and the resultant wound heals well. It is the caustic that should always be employed. To get the utmost effect the nitric acid must be "fuming." The wound should be cauterized as soon after the bite as possible, even up to the seventy-second hour after the accident. Previous to cauterization the wound should be squeezed to encourage bleeding, and it should be thoroughly washed with mercuric chlorid solution (1:1,000). A wet dressing of this should be applied after the cautery has been used. If the wound is a punctured one and cannot be cauterized properly, it should be laid open with a scalpel to allow proper treatment. A bite should not be sewed up. If sutures have been introduced before the patient appears for treatment they should be removed and cauterization should be performed. The method of preparing the Pasteur vaccine and the scheme and method of administering it, as followed in the health department's antirabic clinics, is briefly outlined. For ordinary bites nothing stronger than a three-day cord is used. For face bites and extensively deep wounds two-day cords are employed. If the patient has been bitten by a positively rabid animal it is a practice to advise him to return for a second series of injections after the expiration of six months. This will avoid those rare instances of death when the particular virus concerned has a prolonged incubation period. In the case of face bites or very extensive wounds the entire course of treatment should be repeated two weeks after the completion of the first. The general hygienic measures used in the treatment of the disease are given. In addition to this, mention has been made of many of the various methods of therapy—medicinal and otherwise—which have been experimentally employed in animals or used in human cases in an endeavor to find a specific. Unfortunately, nothing has as yet proved itself in the least reliable. The routine method of handling dog bite cases in New York City is outlined. Regan points out especially that publicity and the institution

of proper federal laws are essential for the eradication of the disease in this country. That this ideal condition is attainable, the experience of other nations has shown. Federal laws should regulate the importation of dogs, the compulsory impounding of all stray animals and the proper supervision of all licensed dogs. Among the important measures comprised in this supervision is the use of a proper muzzle for dogs in all public places under the penalty of destruction of the dog.

Arkansas Medical Society Journal, Little Rock

August, 1919, **16**, No. 3

Prevention, Control and Cure of Tuberculosis as a Problem for United States Government. J. D. Southard, Fort Smith.—p. 59.
Treatment of Long Bone Fractures. W. F. Smith, Little Rock.—p. 65.

Boston Medical and Surgical Journal

Aug. 28, 1919, **181**, No. 9

*Diet in Tuberculosis. I. J. Clarke, Haverhill, Mass.—p. 249.
*Diet in Tuberculosis. R. Morgan, Westfield, Mass.—p. 252.
Community Machinery for Discovery of Tuberculosis. D. B. Armstrong, Framingham, Mass.—p. 255.
Rehabilitation of Tuberculous Soldier. C. E. Perry, Northampton, Mass.—p. 260.
Rehabilitation of Tuberculous Soldier. S. H. Stone, Boston.—p. 264.
*Postinfluenzal Tuberculosis. T. J. Murphy, Boston.—p. 266.
Radiotherapy. F. Bryant, Worcester.—p. 270.

Diet in Tuberculosis.—Clarke's paper consists largely of more or less fixed deductions from the observation of a moderate number of cases of tuberculosis. He gives a number of diet lists in full.

Diet in Tuberculosis.—Morgan believes that there is still a tendency to overfeeding in the treatment of tuberculosis. He feels that lunches should not be served to the tuberculous adult patient, except as a special prescription for an unusual condition. In his experience, serving only three meals per day has given better results, both from the standpoint of the patient and the institution.

Postinfluenzal Tuberculosis.—From an observation of cases and a study of the literature Murphy concludes that epidemics of influenza are not followed by any measurable increase in the incidence of tuberculosis. In people with mild or arrested tuberculosis a higher incidence of influenza is evident than in those with the advanced type. In people with active tuberculosis a certain degree of immunity is produced by the constant presence of a low grade chronic inflammatory process of the respiratory tract, which protects them to some extent against a frank invasion of influenza. Cases of glandular tuberculosis, especially the cervical and tracheobronchial type occurring in children, show a very high incidence of influenza, but very few frank cases of pulmonary tuberculosis follow. Persons in the prime of life, apparently free from physical defects and previous history of illness, are more susceptible to influenza than others.

Canadian Medical Association Journal, Toronto

August, 1919, **9**, No. 8

Contribution of Hospital to Surgery of To-Day. J. Halpenny.—p. 680.
Report on Cinematic Amputations, Based on a Visit to Putti's Military Clinic in Bologna, Italy. J. A. Gunn and W. E. Gallie.—p. 694.
Notes from Service for Wounds of Chest. N. B. Gwyn.—p. 702.
Canadian Doctors and Uncanadian Diseases. J. L. Todd.—p. 709.
Glycosuria in Pregnancy. M. H. V. Cameron.—p. 717.
Vital Statistics; What They Teach. J. W. Bonnier.—p. 723.
Nervous Conditions Associated with Influenza. G. W. Howland.—p. 727.
Death Rate Above Age of Forty. W. H. Hattie.—p. 732.

Florida Medical Association Journal, St. Augustine and Jacksonville

August, 1919, **6**, No. 2

Medical and Surgical Treatment of Senile Cataract. W. H. Adams, Jacksonville.—p. 35.
Midwife Obstetrics. W. W. MacDonell, —Jacksonville.—p. 39.
Seminal Vesiculitis. E. Peters, Miami.—p. 41.
Venereal Disease; Public Understanding and Misunderstandings of of Them. H. E. Whitford, Ozona, Fla.—p. 43.
Chronic Dacryocystitis and Its Treatment. A. K. Wilson, Jacksonville.—p. 45.

Georgia Medical Association Journal, Atlanta

July, 1919, **9**, No. 3

What Constitutes a Roentgen-Ray Examination. G. M. Niles, Atlanta.—p. 42.
Empyema: Its Diagnosis and Management. E. Murphy, Augusta.—p. 47.
Medical Inspection of Schools. M. M. McCord, Rome.—p. 50.
Operative Treatment of Retroversion of Uterus. A Review of 185 Operative Cases. G. W. Quillian, Atlanta.—p. 53.

Indiana State Medical Association Journal, Fort Wayne

Aug. 15, 1919, **12**, No. 8

Medical Organization Work. W. H. Stemm, North Vernon, Ind.—p. 205.
Improving Wassermann Test. Ice Box Incubation Latest Step. B. W. Rhamy, Fort Wayne.—p. 207.
Nephritis and Infections of Urinary Tract. C. G. Beall, Ft. Wayne.—p. 209.

Journal of Cancer Research, Baltimore

July, 1919, **4**, No. 3

*Primary Spontaneous Tumors of Testicle and Seminal Vesicle in Mice and Other Animals. XII, Studies in Incidence and Inheritability of Spontaneous Tumors in Mice. M. Slye, H. F. Holmes and H. G. Wells, Chicago.—p. 207.
*Cancer in Hainan, China. N. Bercovitz, China.—p. 229.
Mortality Statistics of Cancer Among Wage Earners: Comparative Incidence of Disease in General Population. L. I. Dublin, New York.—p. 235.
Lipoids in Tumors of Dental Region. K. W. Dewey, Urbana, Ill.—p. 263.
Size of Spleen in Immune Mice. W. H. Woglom, New York.—p. 281.
Multiple Tumors of Mouse Mamma: Are They Independent or Metastatic? A. Fischer, Bergen, Norway.—p. 325.

Primary Spontaneous Tumors of Testicle.—Among 19,000 mice dying natural deaths and examined postmortem, about one half of which were males, twenty-eight instances of primary tumor of the testicle were found by Slye and her associates. Most of these resembled in all essential features the tumors that arise in the testicle of man and other animals, consisting of cells closely resembling the epithelium of the seminiferous tubules, arranged in an alveolar structure. Despite great vascularity and a markedly atypical structure, no remote metastasis was observed, although in one case a series of six contiguous independent nodules was formed, and one case showed bilateral testicular tumors. Two of the growths seemed to be true spindle cell sarcomas, one arising at the site of a wound. Three of the typical "orchidoblastomas" also followed trauma. No evidence could be obtained that any of these tumors had arisen in a teratomatous growth, and no cases of teratoma have been observed. One case of polymorphous cell sarcoma of the seminal vesicle of a mouse is described, apparently the second case of a tumor of this organ reported in a lower animal. Two cases of primary spontaneous tumor of the testicle in dogs are described. With the exception of one sarcoma, all the twenty-eight neoplasms of the mouse testis occurred in the members of a single strain of mice and its hybrid derivatives, thus substantiating the statement that heredity influences the incidence of tumor development in different organs or tissues. This fact also probably explains the absence of any recorded cases of tumor of the testis in mice observed in other laboratories.

Cancer in Hainan, China.—This statistical study of cancer in Hainan made by Bercovitz brings out the fact that cancer in Hainan is as much a disease of the early decades of life as of the later decades. Cancer of the penis and glands of the neck is unusually frequent. Cancer of the exposed surfaces of the body is very common. Cancer of the stomach and of the uterus is infrequent.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

July, 1919, **13**, No. 4

*Comparison of Influence of Secretin and Antineuritic Vitamin on Pancreatic Secretion and Bile Flow. C. Voegtlin and C. N. Myers, Washington, D. C.—p 301.
*Experimental Irrigation of Subarachnoid Space. L. H. Weed and P. Wegeforth, Baltimore.—p. 317.

*Effect of Subarachnoid Injections of Antiseptics on Central Nervous System. P. Wegeforth and C. R. Essick, Baltimore.—p. 335.
*Benzyl Alcohol: Its Anesthetic Efficiency for Mucous Membranes. T. Sollmann, Cleveland.—p. 355.
*Action of Drugs on Output of Epinephrin from Suprarenals. IV. Strophanthin. G. N. Stewart and J. M. Rogoff, Cleveland.—p. 361.
*Demonstration that Spontaneously Liberated Epinephrin Can Exert an Action on Heart. G. N. Stewart and J. M. Rogoff, Cleveland. —p. 397.

Pancreatic Secretion and Bile Flow.—By employing proper methods Voegtlin and Myers say it is possible to obtain an extract from brewers' yeast which causes an increase in pancreatic secretion and bile flow when this extract is injected intravenously into dogs. Secretin solutions obtained from the duodenum of hogs by the methods described in this paper evidently contained a considerable amount of antineuritic vitamin, as shown by their power in relieving the paralytic symptoms of polyneuritic pigeons. The chemical and physical properties of secretin and vitamin are similar if not identical. Both substances are found in the same fractions.

Irrigation of the Subarachnoid Space.—Weed and Wegeforth record experiments dealing with the irrigation of the meninges by physiologic sodium chlorid solution and by Ringer's solution. The results of washing out of the subarachnoid space by a bland solution, in the presence of an otherwise fatal infection, are presented in detail. The authors found that irrigations of the spinal and cerebral subarachnoid spaces are well tolerated by cats if the irrigating fluid is composed of sodium chlorid, potassium chlorid and calcium chlorid in proper proportions (modified Ringer's solution). If, however, the irrigation is done with isotonic solutions of sodium chlorid alone, various toxic effects become apparent. Many of these animals die during or immediately after the irrigation; if this immediate toxicity is survived, convulsive seizures and acute mania are almost invariable. Recovery from such attacks is frequent. Single irrigation of infected meningeal spaces with modified Ringer's solution has prolonged the life of the animals, as compared with controls. The period of survival in many cases has been doubled as a result of this washing out of the infected meninges. Multiple irrigations have not been attempted.

Effect of Subarachnoid Injections.—The toxicity of certain antiseptics within the meninges was tested by Wegeforth and Essick and the results are recorded in detail. Most of the chemical bodies employed possessed definite toxicity so that unless given in suitable dilution and amount, death of the animal would ensue. With chloramin and flavine, in addition to the initial toxicity, a secondary cause of death in from five to ten days was brought about through direct injury to the central nervous system. With injection of small amounts of a suitable dilution the animals remain apparently normal but all have shown at necropsy pathologic changes in the meninges. The lesion consists of a more or less complete obliteration of the meningeal (subdural and subarachnoid) spaces with serofibrinous exudate; in the more severe cases the nervous system becomes involved in a process of destruction by direct continuity from the meninges. The blocking off of the subarachnoid space was complete in only one case, as demonstrated by the subsequent injection of ink. It was not, however, sufficient for the localization of the infection. The subarachnoid injection of compound solution of cresol and potassium permanganate, in the presence of an otherwise fatal meningeal infection, did not prolong the life of the animal.

Anesthetic Efficiency of Benzyl Alcohol.—Sollmann found that benzyl alcohol is a fairly efficient anesthetic for intact mucous membranes, greatly surpassing procain; ranking about with alypin and betaeucain, and somewhat weaker than holocain or cocain. Its action is not as lasting as that of cocain, and even 1 per cent. solutions produce considerable smarting. Commercial solutions in ampules appear to deteriorate somewhat, so that Sollmann considers it preferable to use freshly made solutions, when possible.

Output of Epinephrin from the Suprarenals.—Stewart and Rogoff have been unable to demonstrate any decided and constant effect of strophanthin on the epinephrin output. Therefore, they believe that statements in the literature that the drug causes a marked augmentation of the output are based on the use of inadequate methods.

Action of Epinephrin on the Heart.—It was demonstrated by Stewart and Rogoff that the epinephrin passing into the blood stream from the suprarenals at the ordinary rate can exert a definite action on the heart. This was clearly shown by the marked effect produced on the cardiac irregularity evoked by strophanthin when the suprarenal blood was temporarily excluded from the circulation or allowed to enter it. Similar observations were made in a case of cardiac irregularity occurring in the absence of strophanthin. It was proved by the artificial administration of epinephrin that the constituent in the suprarenal blood responsible for the observed effects was epinephrin.

Kansas Medical Society Journal, Topeka

August, 1919, **19**, No. 8

Study of 750 Obstetric Cases in Private Practice. E. A. Reeves, Kansas City.—p. 177.
Plea for Earlier Recognition and Elimination of Chronic Infections of Head. E. N. Robertson, Concordia.—p. 180.
Neurasthenia and Associated Psychogenic Disorders. F. A. Carmichael, Osawatomie.—p. 184.

Maine Medical Association Journal, Portland

August, 1919, **10**, No. 1

How to Reduce Mortality Rate in Cancer. W. M. Spear.—p. 7.

Medical Record, New York

Aug. 30, 1919, **96**, No. 9

*Series of Pneumonia Cases Complicated with Emphysema. D. M. Myquist. U. S. Army.—p. 353.
Sticking Points in Development. C. L. Redfield, Chicago.—p. 360.
In Defence of White Operating Room. W. L. Secor, Kerrville-on-the Guadalupe, Texas.—p. 362.
Fatal Case of Aspiration Pneumonia Caused by Ingestion of Zinc Stearate. G. F. Boehme, New York.—p. 364.
Gunshot Fractures. G. E. Wilson, Toronto, Canada.—p. 365.

Pneumonia Complicated with Emphysema.—During an epidemic of influenza, followed by bronchopneumonia, at Camp Hospital No. 12, subcutaneous emphysema of the face, neck and chest wall, and in a few cases of practically the entire body, was noted in thirteen cases. The areas of emphysematous tissue showed no gross change, and the gas which escaped had no odor, but had a tendency to aid combustion. In all cases air was found in the mediastinal tissue, pericardial fat, and in most cases in the interstitial tissue of the lung. Pleurisy was noted in a number of cases, usually of a plastic type. In other cases it was rather gelatinous, especially on intralobar surfaces. One case with empyema complication was found. The lungs usually showed an extensive involvement. A gram-positive bacillus was isolated from the blood in two cases prior to death, and in heart blood and gaseous tissue in four cases at necropsy. The organism was rather large; spores were present at one end of the bacillus. No capsule was demonstrable. It was acid fast. In a few old cultures it was noticed in diplos, but chains were never seen. Culturally it grew in deep stabs, never on the surface, and the more luxuriant growth was always in the bottom of the stab, with formation of gas and breaking up of mediums. In secondary cultures gas appeared after from forty-eight to seventy-two hours. While no definite grouping or classification of the organism is made, the authors feel that its morphologic and cultural characteristics tend to place it in the *B. welchii* group. Its mode of entrance probably was through the respiratory tract, the organisms reaching the consolidated areas of lung.

Modern Hospital, Chicago

August, 1919, **13**, No. 2

Hospital Which Was Built to Endure. J. J. Weber, Boston.—p. 83.
Suggestion for Practical Training of Public Health Nurses. C. E. McCombs, New York.—p. 88.
Special Problems of Hospital Administration. H. O. Collins, Winnipeg, Canada.—p. 90.
Winchester Hospital, Winchester, Mass., Meets Special Needs. W. C. Hill, Boston.—p. 92.

Various Forms of Hospital Insurance. L. R. Curtis, Chicago.—p. 97.
Anesthetists on Hospital Staff. I. C. Herb, Chicago.—p. 98.
Children's Dispensary Organized on Basis of Appointments for Patients. E. A. Park, Baltimore.—p. 101.
Construction of Isolation Hospitals. D. L. Richardson, Providence.—p. 108.
Little Journeys to Places "Over There." M. J. Robinson, Paris.—p. 118.
Occupational Treatment for Insane. C. F. Read, Dunning, Ill.—p. 128.
Dietitian As Coadjutor of Physician. H. P. Greeley, Madison, Wis.—p. 132.
Health Problems that Affect Employer and Employee. G. E. Perkins, Boston.—p. 134.
An Industrial Clinic without Records, Except in Accident Cases. C. E. Coyne, Boston.—p. 135.

Modern Medicine, Chicago

August, 1919, **1**, No. 4

Better Health Through Better Hospitals. C. B. Moulinier, Milwaukee.—p. 281.
Constitutional Foundations of Federal Public Health Functions. F. J. Goodnow, Baltimore.—p. 291.
Proper Relation of Federal and State Governments in Public Health Work. A. J. McLaughlin, Washington, D. C.—p. 296.
Wood Alcohol Poisoning. R. P. Albaugh, Cleveland.—p. 300.
Surgeon in Relation to Public Utilities. C. M. Harpster, New York.—p. 301.
Medical Service for Employees and Families at Endicott Johnson Corporation. L. D. Fosburg, Endicott, N. Y.—p. 308.
Occupational Diseases Under Workmen's Compensation Laws. C. Hookstadt, Washington, D. C.—p. 311.
Seven Years of Industrial Medical Service for Montgomery Ward Employees. J. D. King, Chicago.—p. 316.
Simple Health Literature for Employees. E. A. Hunger, Rochester, N. Y.—p. 321.
Employees' Hospital of Fairbanks, Morse and Company. C. F. N. Schram, Beloit, Wis.—p. 322.
Plans and Purposes of American Public Health Association. L. K. Frankel, New York.—p. 329.
Motion Pictures in Public Health. L. W. Sprague, New York.—p. 330.
Public Health Education. D. Liber, New York.—p. 332.
Needless Waste of Man Power. J. P. Munroe, Washington, D. C.—p. 340.
Housing Development as a Post War Problem in Canada. T. Adams, Ottawa, Canada.—p. 344.

Nebraska State Medical Journal, Norfolk

August, 1919, **4**, No. 8

Review of Operative Surgery Done in Base Hospital No. 49. A. C. Stokes, Omaha.—p. 227.
Treatment of Syphilis With Mercurialized Human Serum. C. H. Bastron, Lincoln.—p. 230.
Practical Value of Spinal Fluid Examinations. M. G. Wohl, Omaha.—p. 234.
War Psychoneuroses. G. W. Dishong, Omaha.—p. 238.
Difficulties Encountered in Breast Feeding and Treatment. W. O. Colburn, Lincoln.—p. 243.
University of Nebraska College of Medicine and Hospital. I. S. Cutter, Dean.—p. 247.

New York Medical Journal

Aug. 30, 1919, **110**, No. 9

Removal of Foreign Bodies from Bladder by Natural Route. G. Luys, Paris, France.—p. 353.
Pollens in Hay Fever. W. Scheppegrell, New Orleans.—p. 357.
*Favus in an Adult. C. Wolf, New York.—p. 362.
How to Examine Rectum and Interpret Findings. C. J. Drueck, Chicago.—p. 363.
Influenzal Pneumonia at Camp Greene, N. C. C. P. Brown, Philadelphia and F. W. Palfrey, Boston.—p. 368.
Case of Intraocular Tumor. H. F. Hansell, Philadelphia.—p. 372.
*Juvenile Diabetes. Report of Three Cases. P. Horowitz, New York.—p. 374.
Clinical Notes from France. C. G. Cumston, Geneva, Switzerland.—p. 376.

Favus in an Adult.—In the case cited by Wolf the application of strong antiparasitics in lotion or ointment form has had no effect in destroying the offending parasite. The disease yielded promptly to a single epilating dose of the roentgen ray.

Juvenile Diabetes.—Of the three cases reported by Horowitz the oldest patient was only 3 years of age, and the youngest slightly more than 2 years old. The cases show the value of institutional over home treatment. Two patients were treated in the hospital and improved very much more rapidly than did the patient who was treated at home. In each case there was a definite history of an intestinal toxemia preceding the onset of the disease.

Northwest Medicine, Seattle, Wash.

August, 1919, **18**, No. 7

*Care of New-Born, with Especial Reference to Prematures. E. J. Huenekens, Minneapolis.—p. 149.
Radium. S. W. Mowers, Seattle.—p. 153.
Ear As An Aid in Diagnosis. E. Woods, Ashland, Ore.—p. 157.
Renal Infections. J. D. Windell, Spokane.—p. 160.

Care of New-Born.—Huenekens has collected seventy cases of premature infants coming under his personal observation; of these fifty-eight developed definite signs of rickets. Of the twelve who did not develop rickets, three were under observation too short a time and four were two to three weeks premature, leaving only five definitely premature infants that did not develop rickets. Therefore, fifty-eight out of sixty-three, or 92 per cent., of premature and twin infants were found definitely rachitic. The time of occurrence is of great interest, because rickets usually does not begin before the sixth month. Of thirty-three cases seen for the first time at or before four months, twenty-seven, or 81 per cent., showed evidence of rickets at that time. It is, therefore, evident that in the treatment of the special form of rickets in premature infants the deficiency of calcium must be made up. Based on the experimental work of Schloss, Huenekens has been using tricalcium phosphate and cod liver oil with very good results.

Philippine Journal of Science, Manila

January, 1919, **14**, No. 1

Physiologic Active Constituents of Certain Philippine Medicinal Plants: III. A. H. Wells, Manila.—p. 1.
*Treatment of Human Beriberi with Autolyzed Yeast Extract. N. M. Saleeby, Manila.—p. 11.
Photographic Study of Leprosy. O. E. Denney, Manila.—p. 13.
*Comparative Study of Different Methods of Treatment of Typhoid. P. T. Lantin, Manila.—p. 19.
Validity of Name Discomyces for Genus of Fungi Variously Called Actinomyces, Streptothrix and Nocardia. E. D. Merrill and H. W. Wade, Manila.—p. 55.
Iontha Ida, a New Philippine Noctuid. C. S. Banks, Manila.—p. 71.
Social Bees of Philippine Islands. T. D. A. Cockerell, Manila.—p. 77.
Philippine Bees of Family Nomadidae. T. D. A. Cockerell, Manila.—p. 83.
Osteology of Giant Gallinule of Philippines, Porphyrio Pulverulemtus Temminck. R. W. Shuffeldt, Manila.—p. 87.
New or Rare Philippine Reptiles. E. H. Taylor, Manila.—p. 105.
Ipon Fisheries of Abra River. E. H. Taylor, Manila.—p. 127.
Phytophthora Faberi Maubl: The Cause of Coconut Bud Rot in the Philippines. O. A. Reinking, Manila.—p. 131.

Treatment of Human Beriberi with Autolyzed Yeast Extract.—About twenty cases of human beriberi were treated by Saleeby with autolyzed brewers' yeast extract. Adults were given from 150 to 40 c.c. three times a day. Children were given from 2 to 4 c.c. every three hours. Larger doses did not seem to give better results. No sign of poisoning was observed. Only acute and uncomplicated symptoms of beriberi were observed under treatment. Chronic nerve, muscular, or cardiac lesions were actually unaffected. All acute peripheral symptoms of neuritis were affected quickly. Marked results were noted in less than three days and a week's treatment seemed to give full relief in mild acute cases. Treatment was generally followed up for two weeks at least. Infantile beriberi symptoms were relieved with comparative rapidity. Edema yielded quickly, and nutrition improved at once. No special diet was prescribed. Patients were given regular hospital diets in accordance with the state of their digestion. Children receiving the extract continued to nurse at the mother's breast. The effect of the autolyzed yeast extract used is similar to that produced by the hydrolyzed extract of rice polishings; it seemed weaker, however.

Treatment of Typhoid Fever.—The treatment of ninety-eight cases of typhoid was carried out by Lantin under two general groups; namely, (*a*) treatment with foreign protein, which includes sensitized and nonsensitized vaccine, peptone and milk; (*b*) treatment with colloidal preparation, such as colloidal gold. On the basis of his experience, Lantin is inclined to believe that the nonspecific theory with regard to the action of vaccine as used in this investigation seems plausible, but that the exact details of the mechanism of

action of each kind of treatment administered is not yet fully understood. However, it was observed that a moderate reaction, following the administration of any of the treatments discussed, produced beneficial effects.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

July, 1919, **24**, No. 2

Roentgen-Ray Examination of Liver, Gall Bladder and Bile Ducts. R. Knox.—p. 37.
Case of Double Shadow Caused by One Stone in Kidney. T. G. Evans.—p. 53.
Ossification of Costal Cartilages. R. W. A. Salmond.—p. 54.
"Cor Pendulum" or "Dropping Heart." H. C. Geuken.—p. 55.
Splenic Calculus. W. Mitchell.—p. 59.
New Goggle for Use in Fluoroscopy. I. S. Trostler.—p. 60.

British Medical Journal, London

Aug. 9, 1919, **2**, No. 3058

*Bacteriology of Chronic Nasal Catarrh and Treatment by Autogenous Vaccines. L. Mackey.—p. 159.
Treatment of Chronic Urethritis: New Instrument for Cauterizing the Lacunae. W. W. Powell.—p. 161.
Ileocecal Valve in Man. A. R. Short.—p. 164.
*Renal Efficiency Tests in Nephritis and Reaction of Urine J. B. Leathes.—p. 165.
Influenza Epidemic in Egyptian Expeditionary Force. J. D. Benjafield.—p. 167.
Goiter. H. J. Boyd.—p. 169.

Autogenous Vaccines in Treatment of Chronic Nasal Catarrh.—The cases on which Mackey's paper is based concerned patients suffering from (1) recurrent acute nasal catarrh, (2) chronic nasal catarrh or (3) chronic postnasal catarrh. Mackey always uses an autogenous vaccine. The vaccines were made from the germ or germs which he believed to be responsible, and always from the primary cultures when these were pure. Mixed vaccines were made when two or more germs grew profusely on the plates, or when, as sometimes happened, a different infection was found in the two nasal passages. The vaccine most frequently used was pneumococcus, either pure or combined with some other germ, and the next on the list was Pfeiffer's influenza bacillus; then *M. catarrhalis, Staphylococcus aureus, Streptococcus mucosus, B. mucosus-capsulatus* (Friedländer's), and, last of all, *B. Septus* and *B. coryzae-segmentosus.* The vaccines were made in such strengths that 20 minims represented the maximum dose. Mackey began with 4 or 5 minims and gradually increased the dose, giving twelve doses at intervals of a week. The maximum dose of pneumococcus and streptococcus used was always 150 millions for an adult and for the other germs 300 or 400 millions. In one half the cases the catarrh was cured and the nasal passages were normally sterile. In about one third of the cases the catarrh persisted in a modified degree.

Renal Efficiency Tests in Nephritis.—Leathes states that respiratory activity can effect the reaction of the urine in a very marked degree as is shown by experiments in which the subject voluntarily increased the depth of his breathing for an hour or even half an hour at times when the reaction of the urine was otherwise certainly acid, for instance, in the late afternoon, or still more in the middle of the night. On every occasion in Leathes' experiments the results indicated a higher percentage of CO_2 in the lungs during sleep, and therefore give support to the hypothesis that the morning alkaline tide is related to variation in the activity of the respiratory center. The experiments are being continued.

China Medical Journal, Shanghai

July, 1919, **33**, No. 4

Investigation of Epidemic Meningitis in Hongkong. P. K. Olitsky.—p. 309. To be Continued.
Epidemic of Cerebrospinal Meningitis at Chengtu (Szechwan). H. J. Dubreuil.—p. 321.
Multiple Enchondromas of Extremities. A. I. Ludlow.—p. 323.
Vital Statistics Based on Histories of 4,000 Chinese Families. W. K. Lennox.—p. 325.
Auricular Flutter; Report of Case. G. T. Tootell.—p. 346.
Intensive Primary Ether Anesthesia. O. T. Logan.—p. 347.
Congenital Malformations of Anus. J. M. Gaston.—p. 349.
Two Cases of Imperforate Anus. J. C. McCracken.—p. 353.
Chinese General Hospital in France. E. J. Stuckey.—p. 353.

Indian Medical Gazette, Calcutta

July, 1919, **54**, No. 6

Sand Fly Fever and Its Relationship to Dengue. J. W. D. Megaw.—p. 241.
Civil Surgeon at Headquarters in Upper Burma. J. Entrican.—p. 247.
Schistosomiasis in India. R. B. Seymour.—p. 253.
Influence of Abdominal Lesions on Respiratory System. D. J. Harries.—p. 253.
Calculus of Prostate. R. L. Spittel.—p. 255.
Specific Fever or Syphilitic Septicemia. D. McCay.—p. 260.

Japan Medical World, Tokyo

July 27, 1919, No. 292.

Experimental Study of Life History of Sparganum Mansoni Cobbold. T. Okumura.

August 3, 1919, No. 294

*Subordinate Causes of Pulmonary Hemorrhage. Yoshikawa.
*Urinary Analysis of Pregnant and Parturient Women. Mizutani.
Identification and Treatment of Uncinaria. Irisawa.

Subordinate Causes of Pulmonary Hemorrhage.—From clinical observation Yoshikawa concludes that the following factors play an important part in the production of pulmonary hemorrhage: (1) Habitual drinking or blood relationship to a habitual drinker are very apt to be a part of the history in a case of pulmonary hemorrhage and it often is very severe; (2) a tall person suffers oftener from pulmonary hemorrhage than a short person; (3) the breast circumference does not influence the symptom; (4) the anesthetic thorax often produces the symptom; and also diffuse hardness produces a severe pulmonary hemorrhage; (5) males from 15 to 25 years of age and females from 25 to 35 years of age are especially prone to have pulmonary hemorrhage.

Results of Urinary Analysis of Pregnant and Parturient Women.—The author analyzed the urine of 100 women after parturition and of seventy-one pregnant women and found that albuminuria occurs after parturition in 84 per cent. Primiparas produced about 9 per cent. more cases of albuminuria than multiparas. Serious cases of albuminuria occur twice as often in primiparas as in multiparas. Serious cases of albuminuria are met with oftener among younger persons; they decrease in number as the age advances; 16 per cent. of the postparturient women had casts. The primiparas had casts twice as often as the multiparas. In 68 per cent. of cases of albuminuria at parturition the condition disappears on the second day, while in 85 per cent. it disappears within six days. Albuminuria that is associated with casts is more persistent than when no casts are present; 43 per cent. of these patients were unimproved on the sixth day. The percentage of improvement in postparturient albuminuria is antiproportional to the concentration of albumin at the time of the parturition. The multipara improves better than the primipara. Sugar was demonstrated in 3 per cent. of the parturient cases; in 5.6 per cent. of the postparturient cases sugar was present. A positive indican reaction was demonstrated in 13.3 per cent. of the parturient and 15.7 per cent. of the postparturient cases. A higher percentage of positive indican reactions was obtained in primiparas than in multiparas. A positive reaction was obtained in 18 per cent. of the parturients and 7 per cent. of the postparturients. Epithelioid cells were demonstrated in 96 per cent. of the parturients and 98 per cent. of the postparturients. Leukocytes were demonstrated in 92 per cent. of the parturients and 96 per cent. of the postparturients. Erythrocytes were demonstrated in 12 per cent. of the parturients and 8.5 per cent. of the postparturients.

Journal of Laryngology, Rhinology and Otology, London

August, 1919, **34**, No. 8

Scientific Relics of Morell MacKenzie. I. Moore.—p. 278.
Spasm at Entrance to Esophagus. A. B. Kelly.—p. 285.
Clinical Type of Dysphagia. D. R. Paterson.—p. 289.
Aqueduct of Fallopius and Facial Paralysis. D. McKenzie.—p. 291.

Lancet, London

Aug. 9, 1919, **2**, No. 5006

*Normal Vital Capacity in Man and Its Relation to Size of Body. G. Dreyer.—p. 227.
*Etiology of Influenza. G. E. Beaumont.—p. 234.
Sanatorium Treatment and Military Service: An Analysis of Forty-Seven Cases. E. E. Prest.—p. 240.
*Incidence of Tuberculosis Among Asylum Patients. F. A. Elkins and H. H. Thomson.—p. 242.
Primary Toxic Effect of Neosalvarsan. K. Petren.—p. 244.
Treatment of Sciatica by Radiant Heat and Static Waves. J. J. Grace.—p. 245.
*Intravenous Injections of Antimony Tartrate (Tartar Emetic) in Bilharziasis. F. E. Taylor.—p. 246.

Normal Vital Capacity in Man.—The results of Dreyer's investigations enabled him to establish definite relationships between vital capacity and body surface, body weight, stem length and chest measurement, and to show that vital capacity is not a simple function of height, as Hutchinson claimed. Vital capacity is a function of weight. Dreyer illustrates his investigations by many mathematical calculations.

Etiology of Influenza.—Examination by Beaumont of material obtained from patients suffering from influenza showed the presence of a mycotic organism. Beaumont suggests that it is possible that influenza is a mycosis, not necessarily in all cases a bronchomycosis, but perhaps in some an enteromycosis. Although the results obtained do not justify an assertion that influenza is a mycotic infection, the author states that they appear to demonstrate the fact that such an organism is present during the disease, and afford a means of unifying the seemingly discordant results that have been obtained by other workers.

Tuberculosis in Asylum Patients.—A study of the incidence of tuberculosis among asylum patients was made by Elkins and Thomson. They found that the mentally abnormal person is, generally speaking, more liable to develop tuberculosis than the individual who is mentally normal. This liability is primarily due to predisposition dependent on the mental condition. The determining factor is the spread of tuberculosis among the asylum patients in contact infection. Contact infection among the mentally abnormal is frequently due to infected excreta. In view of the extreme susceptibility on the part of asylum patients to develop tuberculosis the authors hold that it is essential that increased efforts should be made to provide such conditions of asylum life as will tend to counteract such susceptibility.

Antimony Tartrate in Bilharziasis.—Ten cases of vesical bilharziasis were treated by Taylor by Christopherson's method which consists in giving a course of injections of tartar emetic on alternate days for a period of from fifteen to thirty days, commencing with 0.5 grain dissolved in 6 c.c. of distilled water, and increasing by 0.5 grain up to 2 grains until a total of 30 grains has been injected.

Medical Journal of Australia, Sydney

March 29, 1919, **1**, No. 13

*Useful Support for Operations on Kidney. H. B. Devine.—p. 251.
Bilharziasis. N. H. Fairley.—p. 251. To be Continued
Jaenne D'Arc as a Pathologic Study. C. MacLaurin.—p. 255.

Useful Support for Operations on Kidney.—Devine uses a kidney rest made of copper and fashioned on a mould from the concavity of a medium sized man in acute lateral flexion.

July 19, 1919, **2**, No. 3

Intravenous Serum Therapy in Influenza. F. T. Grey.—p. 47.

July 26, 1919, **2**, No. 4

*Puerperal Infection: Its Relations to Polypoid Decidual Endometritis. A. J. Nyulasy.—p. 61.
Vaccine Treatment of Febris Enterica. S. J. Cantor.—p. 63.
Results of Nerve Suture. P. G. Dane.—p. 65.
Influenza: Its Early Treatment. H. V. D. Baret.—p. 67.

Puerperal Infection: Its Relations to Polypoid Decidual Endometritis.—Nyulasy is convinced that the great majority of cases of serious puerperal infection, fundamentally associated with the interior of the uterus, are due to polypoid decidual endometritis, with or without adherent placenta. The involved decidua may take the form of polypoid or of papillomatous outgrowths especially over the placental site or it may merely be thickened and uneven, the particular type depending apparently on the extent and distribution of the interstitial fibrous tissue. The disease may or may not lead to abortion, the most pronounced cases being met with after full time labor. It is a frequent cause of adherent placenta. The great outstanding feature of the disease from a clinical standpoint is the singular liability of the diseased decidua to become infected and thus, perhaps, to lead to septicemia, thrombophlebitis, or other fatal effect. The microscope practically always gives evidence of this infection of the diseased decidua. The indications for treatment are clear; the diseased membrane should be removed promptly and thoroughly.

National Medical Journal of China, Shanghai

June, 1919, **5**, No. 2

Medical Conditions in Japan. W. L. Teh.—p. 91.
Is There Any Quantitative Relationship Between Antigen Dose and Antibody Production? E. T. H. Tsen.—p. 94.
Fatal Case of Tetanus. J. W. H. Chun.—p. 102.
Chinese Medical Schools and State Examinations. K. C. Wong.—p. 106.
Prevention of Influenza and Pneumonia by Maintenance of Uniform Room Temperature. S. L. Burton.—p. 112.

Quarterly Journal of Medicine, Oxford

July, 1919, **12**, No. 48

*Study of Case of Diabetes Mellitus Treated by Allen Method. R. Fitz and A. V. Bock.—p. 307.
*Lymphocytosis in Soldiers. J. B. McDougall.—p. 317.
*Respiratory Metabolism in Case of Prolonged Undernutrition J. Joffe, E. P. Poulton and J. H. Ryffel.—p. 334.
*Investigation into Effects of War Nephritis on Kidney Function; Methods for Estimating Efficiency of Kidneys. H. MacLean and O. L. V. de Wesselow.—p. 347.
*An Investigation on Fatal Cases of Pernicious Malaria Caused by Plasmodium Falciparum in Macedonia. L. S. Dudgeon and C. Clarke.—p. 374.
Clinical Appearance of Bilharziasis in Australian Troops, and Significance of Symptoms Noted. N. H. Fairley.—p. 391.
*Patches of Deep Pigmentation of Oral Mucous Membrane Not Connected with Addison's Disease. F. P. Weber.—p. 404.
*Heart Block and Bradycardia Following Influenza. E. A. Cockayne.—p. 409.

Diabetes Mellitus Treated According to Allen's Method.—Fitz and Bock report observations on a case of diabetes mellitus so treated. At entrance to hospital the patient had a blood sugar concentration of 0.58 per cent. and an acidosis sufficient to lower his alveolar CO_2 tension to 20 mm. During the first twenty-four hours in the hospital he excreted 116 gm. of glucose and 6.98 gm. of ammonia nitrogen. These facts show that the patient was critically ill. On the third day of a carbohydrate free diet the patient's urine showed D = N ratio of approximately 3.65 = 1, and afforded additional evidence that the case was one of maximum severity. The patient was treated according to the method proposed by Allen, and illustrates its value in a favorable case. A seven days' fast was necessary to render the patient's urine free from sugar. At the end of this period the blood sugar had fallen to 0.17 per cent., the alveolar CO_2 tension had risen to 44.8 mm., the ammonia nitrogen excretion had fallen to 1.37 gm., and the patient's condition was much improved. After the urine was sugar free, the carbohydrate tolerance was tested by a systematic daily increase in a pure a carbohydrate diet as was possible to be obtained in the form of green vegetables. The patient tolerated 150 gm. of carbohydrate by this method without becoming glycosuric. During this time the blood sugar fell to normal and was not found materially increased on the last day of the test, when repeated bleedings were made to determine the degree of postabsorptive hyperglycemia. During the period of carbohydrate feeding, the alveolar CO_2 tension remained high, and the ammonia nitrogen excretion dropped to about 0.30 gm. in twenty-four hours, showing that all acidosis had disappeared. The carbohydrate sparing effect on protein metabolism was demonstrated. The nitrogen excretion dropped from about 19 gm. in twenty-four hours on the last day of the fast, to about 7.5 gm. when protein intake was low. As the vegetable protein intake increased considerably the urinary nitrogen increased somewhat. After thirty-three days observation the patient

was discharged from hospital in good condition with normal blood sugar concentration, with trivial acidosis, and approximately in nitrogen equilibrium on a mixed diet within his tolerance, yet ample for his bodily needs.

Lymphocytosis in Soldiers.—A continued clinical and hematologic examination of 438 soldiers, including controls, was made by McDougall; altogether 515 total white cell counts and 607 differential counts were done. Lymphocytosis during the apyrexial periods and polymorphonuclear leukocytosis during the pyrexial periods was the condition found in the regularly relapsing type of trench fever. Cases of regularly relapsing trench fever and of the influenzal type may merge gradually into the irregularly relapsing form. In the irregularly relapsing type there is no such definite fluctuation in the cells as is found in the regularly relapsing type. The existence of sustained lymphocytosis in the presence of a temperature swinging between 98 and 100 F., with symptoms of pain in the head, back and legs, especially in the shins, may be taken as typical of this form of trench fever. A normal differential blood count, in the absence of fever and subjective symptoms, McDougall holds may be regarded as proof of the absence of trench fever infections. A certain proportion of cases of irregularly relapsing trench fever show an excess of large mononuclear cells. These cases are accompanied by very intense shin pains. The influenzal type of trench fever is the mildest form of the disease. The total white cell count in the enteric type is moderately high. In addition, polymorphonuclear leukocytosis is present during the fever. These points serve as useful guides in the differential diagnosis from enteric infections. The vast majority of cases of D. A. H. following trench fever show lymphocytosis, but this is present before the onset of the D. A. H. Temporary accelerations of the pulse rate when the patient is at rest in bed, and especially when he is afebrile, are evidence of a predisposition on the part of the heart for involvement in a more permanent instability. Trench fever can be separated from malaria and influenza by repeated blood examinations.

Respiratory Metabolism in Prolonged Undernutrition.—Poulton and Ryffel claim that the resting metabolism is considerably diminished in prolonged underfeeding, in fact, it may be as low as in complete starvation. The metabolism, measured in the erect position, in a state of muscular relaxation is also diminished. The pulse is slow. In prolonged underfeeding there is no increased efficiency during muscular work, as measured by the rate of increase in the respiratory exchange at different rates of walking. The heat output during muscular exercise is influenced by the deep and surface temperature of the body.

Effects of War Nephritis on Kidney Function.—The investigation on nephritic cases reported on by MacLean and De Wesselow disclosed that the presence of albumin in the urine or the extent of the albuminuria is of little value as an index to the gravity of the case, for it is well known that the more serious cases may show but traces of albuminuria. In general, the amount of protein in the urine in subacute and chronic cases is probably of more importance in indicating the predominating type of disease present than in furnishing information as to the gravity of the renal condition. In the early stages of an acute attack of nephritis the blood urea content furnishes the best indication of the state of the kidney. If this is normal, it may be taken for granted that the damage to the kidney is not sufficient to interfere with its normal function of excreting nitrogenous products. If, on the other hand, the blood urea figure is high, the most valuable information as to the progress of the disease is obtained by occasional estimations of blood urea. If the urea tends to get less, the prognosis is good; if it gets persistently higher, the outlook is correspondingly bad. In severe chronic interstitial conditions the same state of affairs is present. In many subacute and chronic conditions the kidney is not sufficiently damaged to cause an increase in blood urea, and so no information is to be obtained by this test. In such cases other means must be employed, and the authors found that the capacity of the kidneys to concentrate urea in the urine, under conditions described, affords, very helpful information. If after receiving 15 gm. of urea by mouth, the patient excretes urine containing about 2 per cent. of urea, it is safe to conclude that the kidney is at least fairly efficient. If the urine concentration is low, it is in the great majority of cases an indication that the kidney is inefficient. Finally, the authors regard it as most important to emphasize that, whatever the result of the various functional tests may be, no prognosis should be given without first carefully examining the state of the cardiovascular system.

Fatal Cases of Pernicious Malaria with Massing of Plasmodia in Cerebral Capillaries.—Twenty-one patients dying in coma showed massing of numerous malarial parasites in the cerebral capillaries. Every patient was energetically treated with quinin either by the intramuscular or intravenous routes, usually both, from the time of first coming under medical observation. The onset of such cerebral symptoms as drowsiness, mild delirium, apathy, restlessness, was noted as gradual in twelve. Of the remainder, nine, when first seen, were already deeply comatose, and no other history was available. In these Dudgeon and Clarke venture to assume it is at least probable that the onset of coma was sudden or that it deepened rapidly. Usually, the notes indicate a gradual progression from mild to deep coma. In twelve cases from the onset of the first important cerebral symptom, the end was fatal in twenty-four hours or less. The most rapid termination was six hours (one case) and the longest duration sixty hours (two cases). The temperature, where such record exists, was raised invariably from 100 to 105 F. The capillaries, and in the most severe cases the arterioles, were engorged with numerous infected red blood cells which showed the well known tendency to collect at the periphery of the vessels, free parasites, melanin particles, prominent and detached endothelial cells. Various phases of development were represented, "dot" forms, fine rings, segmenting forms, but crescents were not seen. All gradations of blocking up to complete thrombosis with agglutination of and altered staining reactions of the corpuscles were exemplified. Small hemorrhages around the smaller blood vessels were seen in six cases. In one instance the rupture of vessels had allowed the discharge of parasites into the tissues. In most instances examined the rupture of the cerebral capillaries or capillaries in other viscera had not led to the discharge of parasites into the tissues. Abundant infected red cells were seen filling the vessels or tightly packed toward the vessel walls, while absence of infected red cells in the hemorrhagic zone was the rule, not the exception. Pigment, varying in amount, was present in the lining endothelial cells, in detached phagocytes and free in the lumen. Nerve cell degeneration was observed in eleven cases, as shown by cells of abnormal size and shape, loss of Nissl granules, eccentricity and distortion of nucleus to its complete disappearance. The spinal cord in one case showed advanced cell degeneration of the anterior corneal cells with the typical vascular changes and complete blocking of vessels. This patient had developed paraplegic symptoms before death. Local accumulations were found most often in the spleen, marrow, heart and pancreas; less frequently in the intestines, lungs and suprarenals; occasionally in the liver, kidney and thyroid. Fatty and other degenerations of the cardiac muscle, acute tubal "nephritis," vascular changes in the suprarenals, terminating in tissue necrosis and all varieties of pulmonary congestion and hemorrhage were recorded.

Pigmentation of Oral Mucous Membrane.—Weber calls attention to a certain group of cases in which pigmentation, not connected with Addison's disease, occurs in the mucous membrane of the mouth. The pigmentation is in the form of blackish spots and patches on the mucous membrane of the lips or cheeks and sometimes of other parts of the mouth. It is associated with pigmentation of the skin of the face, especially about the mouth and possibly (in one or two cases) of other parts of the body. It occurs in persons of dark complexion, perhaps especially in Roumanian Jews and in certain races, such as Lascars. It is of unknown causation and seems in some cases to be of "physiologic" or, perhaps, atavistic origin. It may be analogous to the black patches often present in the oral mucous membrane of dogs and other

animals. It appears to be allied to simple pigment nevi of the skin, on the one hand, and to freckles (ephelides, lentigines) on the other hand. Weber suggests the possibility that a similar kind of pigmentation may be connected in some indirect way causally with pernicious anemia.

Heart Block and Bradycardia Following Influenza.—In cases of simple influenza, and in many cases with pulmonary complications, bradycardia was extremely common during the epidemic of 1918 and 1919, in which many hundreds of cases were admitted to the Royal Navy Hospital, Haslar. In the majority of cases, after the temperature had become normal, the pulse rate quickly fell below 60 and remained between 50 and 60 for a variable number of days. In more extreme cases a pulse rate of from 36 to 48 was noted. Cockayne took notes of 132 cases in which the pulse fell below 50. Polygrams were taken in fifty-five cases; in nineteen the bradycardia was due to a condition of partial heart block. In some of the remaining cases heart block may have been present, but was not proved. The cases of heart block are divided into sinus block, prolongation of the *a.-v.* interval, 2:1 and 3:1 heart block. No case of complete heart block was met. The points brought out by these cases are that the majority of cases occurred in young men and that all had pneumonia. The pneumonia in most of them was very mild, and in none really severe. All the patients were kept in bed until some days after heart block had disappeared, and when they were examined a month or six weeks later only one complained of any cardiac symptoms (precordial pain and giddiness). None showed any undue irritability of the heart.

Annales de Médecine, Paris

June, 1919, **6**, No. 2

*Malarial Pleurisy and Peritonitis. V. Cordier.—p. 89.
*Undulating Fever with Tuberculosis. R. Burnand.—p. 110.
*Mountain Sickness and Hygiene in Aviation. G. Ferry.—p. 124.
*Immunizing Power of Serum of Diphtheria Bacilli Carriers. P. P. Lévy and J. de Léobardy.—p. 138.
Total Section of Spinal Cord from Contusion. G. Roussy, M. D'Oelsnitz and L. Cornil.—p. 150.

Malarial Pleurisy and Peritonitis.—Cordier is inclined to accept a direct action by the malaria parasite on the peritoneal and pleural serous membranes. Cases of malarial mammitis have been published recently, confirming the possibility of a direct action by the parasite on the tissues. He describes four cases typical of the pleural and peritoneal reactions. It may be acute in both pleura and peritoneum, with double effusion developing within a few hours, the intensity of the abdominal phenomena suggesting peritonitis from perforation. The pleurisy disappears without leaving sequelae. In another group there may be a peritoneal reaction without effusion but entailing meteorism, hiccough, vomiting and symptoms suggesting perisplenitis or gallbladder complication. In another group the pleura seems to bear the brunt of the attack; two of the cases described presented this in a pure form. The effusion abounded in reds with almost pure mononucleosis, and eosinophilia not above 8 per cent. He never succeeded in demonstrating the malaria parasites in the effusions.

Undulating Fever in Tuberculosis.—Burnand warns that the only way to keep an instructive record of the temperature in the tuberculous is to record it at least four times a day, at 8, 2, 6 and 9 and join together the figures for the different months in a single curve. By doing this in hundreds of cases at the Leysin sanatorium, he discovered a special wavelike course in seventy-two cases, and a similar course of the temperature within physiologic range in ten patients. Study of his cases seems to show that this undulating type of temperature corresponds to a peculiarly tenacious form of the infection, with insufficiency of the defensive processes and a diffuse, septicemic toxic type of the bacillary lesions. In thirty-nine cases the charts showed a rise and fall from 38, 30 or 40 C. to nearly or quite 36 C. in two-day periods as a rule, and all except one of these patients died in from three to fifteen months. The undulating temperature within the so-called physiologic range corresponded to a much more benign infection, but likewise diffuse, hard to locate without means of clinical investigation, and particularly tenacious and chronic. Tuberculin offers the best prospects in treatment in the milder forms of this undulant temperature course.

Hygiene of Aviation.—Ferry exclaims that aviation brings us surprise after surprise. His own supervision of aviators during the war has revealed many unexpected pathologic phenomena, especially the changes in the kidneys, their sluggish functioning, and the resulting autointoxication. The men complained of general and nervous asthenia, irritability, nightmares, etc., and sometimes of pain in the lumbar region. One officer had certain symptoms of Bright's disease, with dizziness, on the ground and sometimes on a flight when he was fatigued or had indigestion. Restriction to milk for four or five days and 0.5 gm. of theobromin twice a day the first week generally corrected conditions in such cases except when there were symptoms of weak heart. In this case the prolonged asthenia seemed to be due to suprarenal insufficiency; and it yielded to epinephrin under which also the often concomitant bradycardia disappeared likewise. Personal experiences in a pneumatic chamber with low atmospheric pressure confirmed the injury of the kidneys, and the necessity for care in the diet to ward off further damage. Protection against the cold should include the exposed part of the face; it should be protected with a salve or cream.

The Immunizing Power of the Serum of Diphtheria Bacilli Carriers.—Lévy and de Léobardy have now a record of eight carriers whose serum has immunizing power. Two of them had never exhibited any clinical reaction to the infection.

Archives des Maladies de l'App. Digestif, Paris

March, 1919, **10**, No. 2

*Pseudomalignant Disease of the Stomach. G. Lion.—p. 65.
Endoscopic Description of Rectocolitis. R. Bensaude.—p. 104.
*Simple and Rapid Test for Acids of Gastric Juice. M. E. Binet and G. Verpy.—p. 112.
*Mega-esophagus. L. Bard.—p. 116.

False Cancers of the Stomach.—Lion refers to the tumors found in the stomach at operation and so extensive that their removal seems out of the question, and yet these patients with supposedly inoperable cancer keep on living and finally seem to throw off the disease. He describes a striking case of the kind in a man of 30 who had been having stomach disturbances for ten months with finally signs of stenosis of the pylorus. The operation showed a tumor at the pylorus extending to the lesser curvature and surrounded by hypertrophied glands so numerous and some at such a distance that any operation seemed hopeless, although the tumor was movable its entire extent. The tumor was left unmolested after the gastro-enterostomy, and the man rapidly regained his health. He had refused the proposed treatment as for syphilis, and he lived in good health for twelve years when he succumbed to intercurrent disease. The stomach was found small but with no tumor nor scars nor pronounced thickening of the walls. The pylorus was retracted, but the gastro-enterostomy opening was perfect, and the glands were of normal size. In a second case the man of 57 with an actual, inoperable gastric cancer survived for four years and seven months after the palliative gastro-enterostomy. Reexamination of 76 other cases of palliative gastro-enterostomy for inoperable cancer showed that one patient survived for fourteen years; 4 for nine; 2 for eight; 3 for seven; 6 for six; 9 for five; 13 for four, and 38 for three years. In 5 of these cases the malignant nature of the tumor was established beyond question, and these survived from three to five years. In one other case of actual cancer, the patient survived the gastro-enterostomy for two years and four months. Lion discusses the various affections that may be mistaken for cancer, especially ulcer, syphilis and tuberculosis. Even with the stomach open before him, the surgeon may be unable to tell certain inflammatory from malignant lesions. In case of doubt, histologic examination of a gland is advisable. Lion's experience with 200 cases of unmistakable cancer, on the other hand, demonstrates the great corroborative value of the chemical stomach findings. Syphilis simulates gastric cancer most often; the benefit from treatment is the touchstone. But in one case described there was associated gastric cancer and syphilis, and the umbilicus also ulcerated. Under specific treatment this healed and the tumor in the stomach

melted away, but when a complete cure seemed impending, the incipient cancer made its presence felt.

Determination of Acids in Gastric Juice.—Binet and Verpy describe a technic which is based on Gaultier's simplification of Robin's modification of Töpfer's method. They commend the simplicity and the rapidity of the technic. It shows by three changes of tint in the one specimen of gastric juice in the single tube the content in the gastric juice of the hydrochloric acid, of the acids of fermentation, and of the total acidity. This is accomplished by adding a 0.548 per cent. solution of soda (137 c.c. of normal sodium hydroxid with water to 1 liter). The tube of 1.5 cm. caliber is graduated in tenths of cubic centimeters to a height of 15 c.c. above the first mark, which represents a capacity of 5 c.c. Two other reagents are required: a 2 per cent. alcoholic solution of phenolphthalein, and Töpfer's reagent, which is a 0.5 per cent. alcoholic solution of dimethylamidoazobenzol. The filtered gastric juice is poured into the tube to the 5 c.c. mark; then one drop of the phenolphthalein solution and one drop of the Töpfer. If there is free hydrochloric acid present, the fluid turns a cherry red. Then with a dropper the titrated solution of soda is added, agitating at each drop, until the fluid turns the color of mandarin orange juice. This indicates saturation of the HCl and the figure marked on the tube represents the weight of free HCl in a liter of gastric juice. The soda solution is added further, drop by drop, until the tint veers to a distinct yellow. The figure representing the free HCl is then subtracted from the figure reached now by the fluid, and the difference represents the acids of fermentation present. The soda solution is then added further, drop by drop, until the tint turns slightly pinkish. The mark then reached represents the total acidity. By substracting from this figure the sum of the two other figures, we get the figure for the HCl in organic combinations. Comparative tests with this technic have confirmed its reliability, and it is in constant use in Loeper's service.

Mega-Esophagus.—Bard here reports two cases of abnormally large esophagus which confirmed his previous publications on mega-esophagus, and especially the peculiar shape assumed by the sagging lower end, which is seen to curve off toward the left in the roentgenogram. All these patients found spontaneously that they could swallow better standing up, and also that a deep inspiration aided in the passage of the swallowed food into the stomach by the traction from the diaphragm.

Archives des Maladies du Cœur, etc., Paris

May, 1919, **12**, No. 5

*Extrasystole from Wound of Nerves in Neck. J. Heitz.—p. 193.
*Strophanthin and Coupled Rhythm. D. Simici.—p. 207.
Extrasystoly under Strophanthin. C. Laubry and M. Leconte.—p. 211.
*Nervous Complications in Leukemia. J. Tapie and A. Cassar.—p. 218.

Extrasystole from Nervous Lesion.—In the case described by Heitz, the war wound had injured vessels and nerves in the left side of the neck. Extrasystoles were numerous and there was dyspnea on effort, with paralysis of the vocal cord.

Strophthanthin and Coupled Rhythm.—Simici relates that the coupled rhythm with pseudobradycardia developed after intravenous injections of strophanthin in a man of 48. Such cases testify to a cumulative action by strophanthin, similar to what has been observed with digitalis. The best means to combat arrhythmia of this kind is with epinephrin. Almost simultaneously Routier in France, Houssay in Argentina and Danielopolu in Roumania called attention to the efficacy of epinephrin in arresting heart block. In the case reported, the coupled rhythm and the bradycardia of the radial pulse completely subsided after the third subcutaneous injection of epinephrin, 1.5 mg. fractioned, in twenty-four hours.

Myeloid Leukemia with Hemiplegia or Herpes Zoster.—Tapie and Cassar add two cases to the list of those in which nervous affections developed as complications of leukemia. They took the form of cerebral hemorrhage, convulsions, facial paralysis, or symptoms from pressure on nerves by lymphomas, etc., and in their own cases, occipitofacial herpes zoster in the man of 57, and complete hemiplegia in the other, younger man, with rapidly fatal leukemia.

Archives de Médecine et de Pharm. Militaires, Paris

February, 1919, **71**, No. 2

Gangrenous Infections of War Wounds of Limbs. G. Lardennois and J. Baumel.—p. 129.
Healing of War Wounds under Vincent's Boric Acid-Hypochlorite Powder. P. Latouche.—p. 189; Longuet.—p. 205.
Dysenteric States in the Macedonian Campaign. E. Job and Dumas. —p. 209.
Technic for Emetin Treatment in Dysentery. Lecomte.—p. 253

Bulletin de l'Académie de Médecine, Paris

July 22, 1919, **82**, No. 28

Medico-Surgical Relations between France and America. Tuffier. —p. 60.
Surgical Treatment of Acute Appendicitis. Jalaguier.—p. 65.
*Effects on Organism of Centrifugal Force. A. Broca and Garsaux. —p. 75.
*Spinal Anesthesia. G. Le Filliatre.—p. 77.
Trench Foot (3,600 cas de froidures des pieds). R. Mercier.—p. 80.
*Focal Auscultation. O. Peyret.—p. 83.

Effects on the Organism of Centrifugal Force.—Broca and Garsaux found in a fatal case that death had occurred from anemia of the brain, lungs and heart muscle, aided perhaps by pressure on the solar plexus, and yet the abdomen was nearer the revolving axis. As long as the heart continues to receive blood, it sends it into the abdominal vessels. Experimental research on dogs confirmed the necropsy findings in this case, and emphasized the probable advantages of aviators' wearing an abdominal band.

Spinal Anesthesia.—Le Filliatre reviews his experience with 194 cases at Paris in which he applied spinal anesthesia by what he calls *barbotage arachnoïdien* (described in these columns, Sept. 14, 1918, p. 932). The results were perfect, he says, and as soon as the patients were returned to their bed they felt so well that some asked for their correspondence or wanted to smoke. In the Macedonian campaign he operated with it on 800 wounded too badly injured to be evacuated, and notwithstanding their malaria and losses of blood the results surpassed all anticipations. In another series of 1,700 severely wounded, coming directly from the Chemin des Dames battles, the mortality was scarcely 0.5 per cent. In civilian practice, surgery of the abdomen, thorax, head and neck is rendered not only easier but more certain with this method of anesthesia. It is free from postoperative surprises; the patient is not intoxicated with general anesthesia; the physiologic functioning of the red corpuscles, the kidneys and the liver is unimpaired, and the recuperation after the operation proceeds more smoothly and more rapidly. The anesthesia of the head, arms, chest and abdomen was absolute in every instance, and persisted from three quarters of an hour to an hour or more for the head and neck, to two hours and more for the legs. There never was any vomiting, headache or paralysis, and the slow return of sensibility (about eight hours) renders morphin unnecessary. The only by-effects observed were in about 2 per cent. a very slight disturbance in respiration, with small pulse and slight pallor, never lasting more than five or ten minutes at most, and never alarming.

Focal Auscultation.—Peyret recalls that sound waves are reflected back from an obstacle like light waves, the angle of reflection equal to the angle of incidence. Hence in certain conditions they converge toward the same spot. At certain points, therefore, several waves meet, and the sound therefore is louder at these points, or foci as he calls them. If, for example, a round table is percussed, the point of greatest resonance will be at the center, which is the focus where the sound waves meet. He gives diagrams showing the application of these principles in auscultation of the chest, calling attention to the points where the sound waves converge, and the lines along which there is most convergence, explaining the physical and geometrical laws governing the findings. The ear at the one focal point can hear the percussion sounds from different regions, even from the two apices. The findings are exceptionally instructive under these conditions with incipient pulmonary tuberculosis, as he has determined in examining thousands of tuberculosis suspects in the army. The method is likewise instructive for the heart, abdomen and limbs.

Bulletins de la Société Médicale des Hôpitaux, Paris

June 20, 1919, **43**, No. 21

*Primary Splenomegaly. G. Lemaire.—p. 599.
*Azotemia in Acute Infections. P. Merklen and C. Kudelski.—p. 604.

Primary Splenomegaly.—Lemaire relates that no germs could be cultivated from the blood in the case of primary splenomegaly reported, fatal in five months, but monkeys inoculated with scraps from the spleen developed a similar febrile and fatal disease, with the same changes in the blood, anemia, leukopeny and mononucleosis.

Azotemia in Acute Infections.—Merklen and Kudelski admit that although progressive acute azotemia is a grave sign in acute infectious diseases, the converse is not necessarily true. The subsidence of the azotemia is not always a sign of approaching recovery. The oliguria may be a factor in the azotemia in acute infectious diseases but the principal factor is the exaggerated disassimilation, and this is the side on which danger lies. A single determination of the degree of azotemia is not instructive, but if the curve keeps high or rises, the prognosis grows graver.

Journal de Médecine de Bordeaux

July 10, 1919, **90**, No. 13

*War Neuroses in Serbians. D. A. Hesnard.—p. 259.
*Serologic Tests in Dysentery. E. Duhot and R. Damade.—p. 265.
Intensive Treatment of Syphilis. H. S. Morin.—p. 268
*Unilateral Mydriasis. Cabannes.—p. 270.

War Neuroses.—Hesnard comments on the extraordinary number of cases of functional motor disturbances in the legs among the soldiers in the Serbian army. Among 500 cases of functional nervous disturbances in his service in Serbia, 115 were of this type of incoordination and tremor in the legs. This tremulous astasia-abasia amounted to actual paraplegia in some cases. Combined physiotherapy and psychotherapy proved successful finally in every case.

Serodiagnosis of Dysentery.—Duhot and Damade call attention to the specific nature of the sensitizer with dysentery serum, the Shiga serum responding only to Shiga antigens and not to Flexner. There may be cosensitizers, but the action is much more pronounced with the specific antigen. Tests with serum from forty-eight nondysentery subjects were constantly negative.

Unilateral Mydriasis.—Cabannes explains that mydriasis may be the result of paralysis of the sphincter or it may be from the inertness of the retina. These two conditions can be differentiated with unilateral mydriasis by the fact that the pupil of the nonmydriatic eye contracts in a bright light if the eye in mydriasis has good perception of light. The crossed reflex contracts the pupil of the other eye. When there is no miosis on direct exposure to a bright light, then there is no crossed reflex and this demonstrates that vision is lost in the eye in mydriasis.

Paris Médical

July 19, 1919, **9**, No. 29

*Measuring the Blood. Javal and Boyet.—p. 45.
*Beriberi in Spain and Portugal. F. F. Martinez.—p. 54.
*Pseudarthrosis of the Hip. B. de Laborie.—p. 57.
Auto-Observation of Spermatic Cyst. Le Duigou.—p. 58.

Measuring the Mass of the Blood.—Javal and Boyet review the different methods in vogue for estimating the mass of the blood, its variations, distribution, and the ratio between the plasma and the corpuscles. Nearly ten pages are devoted to this study of the subject, and they affirm in conclusion that the same blood treated with the same solution of a neutral salt gives always the same bulk of corpuscles after centrifugation. The procedures which do not involve sedimentation seem to be more exact. In health, the corpuscles in human blood form nearly half of the total volume of the blood. The refractometer is particularly useful in hydremia for a series of examinations of the blood in the same patient.

Beriberi in Spain.—Reviewed when published elsewhere (June 8, 1918, p. 1803).

Pseudarthrosis of the Hip.—De Laborie has found it possible to detect pseudarthrosis of the hip after fracture by raying the reclining patients, the feet together, and again with the pathologic thigh in forcible abduction but the tube and conditions exactly the same otherwise. The roentgenograms then will show either that the proportions between the parts of the upper end of the femur have remained the same and the head has simply revolved in its cavity; or else the head has scarcely moved while the relations between the other parts have altered. He calls this the abduction sign, and has found it a reliable means to reveal the pseudarthrosis.

July 26, 1919, **9**, No. 30

Fatigue, Especially in Aviators. M. Sisteron.—p. 61.
Hydrotherapy. R. Ledent.—p. 65.
*Diagnostic Importance of Chemistry of the Stomach. L. Pron.—p. 70.
Transfusion of Blood in Shock. R. Ducastaing.—p. 73.

Gastric Chemistry.—Pron does not attach much importance to the stomach chemistry after a test meal, but he regards the analysis of the contents of the fasting stomach in the morning as of primordial importance. Nothing else in this line approaches it in pathologic significance. Continuous hypersecretion, acid catarrh, is common, and any person having regularly in his fasting stomach up to 200 c.c. of a highly acid fluid must be regarded as seriously affected, even although there may be no symptoms from it at the time. Among 388 patients with a splashing sound in the fasting stomach, he found hydrochloric acid in 247 and liquid acid without free acid in seventy-three. The lack of concordance between such findings and the subjective condition is a daily source of error. Because the nervous system happens to become less sensitive, so that the patient suffers less or gains in weight, is no reason for assuming that the stomach conditions have returned to normal or that the trouble is merely "nervous."

Presse Médicale, Paris

July 17, 1919, **27**, No. 40

*Pneumography Applied to Cardiography. C. Laubry and A. Mougeot.—p. 393.
*Treatment of Hallux Valgus. E. Juvara.—p. 395.
*Diuresis in Treatment of High Blood Pressure. Carron de la Carrière.—p. 397.
Technic for Combined Teatment of Syphilis. L. Bory.—p. 399.

Pneumography Applied to Cardiography.—Laubry and Mougeot have been applying to the study of the heart an adaptation of the pneumatic cuff, and they here describe the findings in research of this kind. Comparison of large numbers has shown among other things that the periodic modifications of the amplitude of the pulse, the reflection of the variations in the differential pressure, are often influenced by the respiration but frequently in an opposite direction. He explains this in detail, emphasizing the numerous factors involved and the polymorphism of the variations in the respiratory amplitude.

Hallux Valgus.—Juvara reiterates that in order to correct hallux valgus it is necessary to shorten the overlong metatarsal bone. When this is of proper length, the other bones slip back into their normal place. He cuts a slanting wedge-shaped piece, with a broad tip, out of the metatarsal bone, and drives in a nail to hold the slanting stumps together after throwing a ligature around them. The exuberant capsule is cut down to normal proportions, and as the toe resumes its normal shape the ligaments are no longer stretched unduly. He has operated with this technic in five cases with perfect results. He worked out this technic on the cadaver when he was called on to operate in a case in which two operations by other methods had failed to relieve.

Spa Treatment of High Blood Pressure.—De la Carrière expatiates on the advantages in appropriate cases of physiologically stimulating urinary functioning by systematic ingestion of a weak mineral water. This form of physiotherapy may benefit the entire system by washing out retained chlorids and other toxins, and thus arresting any toxic spasm of arteries and relieving the heart. When the high blood pressure is of functional origin, spa treatment may do wonders. With organic high pressure, fine results may also be attained, if the permeability of the kidneys is retained. This can be most readily ascertained by the test of induced diuresis, or experimental polyuria, that is, the test elimination of urine during the two hours after drinking a given

amount of water, fasting, and reclining. A considerably larger proportion of night urine is also instructive. When these tests give negative findings, spa treatment may help materially and serious clinical symptoms may melt away. Another useful test is by comparing the output of urine with the differential blood pressure. Dividing the figure representing the total twenty-four hour urine (in liters) by the figure representing the differential arterial pressure (in cubic centimeters by the Pachon oscillometer), the quotient represents the daily output of urine per cubic centimeter of differential pressure. In normal conditions this quotient is 0.25 or above; with sclerosis it is 0.20 or below, and organic mischief is certain.

July 24, 1919, **27**, No. 41

Influenza and Surgery. J. L. Faure.—p. 406.
*Hour-Glass Stomach. V. Pauchet.—p. 405.
Influenzal Noma. G. Portmann.—p. 407.

Hour-Glass Stomach.—Pauchet has operated in twenty-one cases of hour-glass stomach. The best results were obtained with extensive resection; in two cases he had to do a second operation as the first had been too conservative. Regional or spinal anesthesia was exclusively used. Five types of complications were observed, stenosis of the duodenum accompanying the bilocular constriction; ulceration with the latter involving the abdominal wall, liver or pancreas; cancerous degeneration; perigastric abscess; a fistula into the colon corresponding to the constricted point; volvulus of the pylorus portion closing the lumen of the mediogastric orifice completely, and acute obstruction of the mediogastric orifice. The bilocular deformity is the result of the healing of a gastric ulcer or, more often, of a callous ulcer in full evolution. Treatment as for syphilis may be tried, if the general health is good, but if there has been much loss of flesh it is better not to wait for this. Persons with chronic ulcer generally lead an ordinary life, and are merely considered to be dyspeptic, nervous or neurasthenic.

Progrès Médical, Paris

July 5, 1919, **34**, No. 27

Some Toxic-Infectious Psychoses. J. Galtier.—p. 261.
Spa Treatment of Heart Disease. A. Mougeot.—p. 262.
Administration of Alkalines in Stomach Disease. E. Binet.—p. 265.
Roentgen Rays and Dry Heat in Relation to Immunity. A. Bernard.—p. 266.

July 12, 1919, **34**, No. 28

*The Oculocardiac Reflex in Mumps. J. Margarot.—p. 271.
Induced Pneumothorax. J. Bertier.—p. 272.
Spa Treatment of Gynecologic Affections. Macrez.—p. 276.
Solution of Sugar plus Lactic Acid in Local Treatment of Septic Wounds. B. Gheza.—p. 278.

The Oculocardiac Reflex in Mumps.—Margarot discovered that the oculocardiac reflex was exaggerated in eight ninths of about forty-five cases of mumps in soldiers. In several the heart beat slowed up at once by from twelve to twenty-eight beats and by the next day or two the pulse was much slower, declining from 100 to 52 in one case with orchitis, and from 120 to 68 in a case with tonsillitis. The blood pressure also declined to correspond. These and other data presented seem to demonstrate that vagotony is habitual in mumps. Sympatheticotony was exceptionally observed, and only when the pancreas was involved in the mumps. It corresponded then to the set of sympathetic phenomena noted with acute inflammations of the pancreas.

Revue Médicale de la Suisse Romande, Geneva

May, 1919, **39**, No. 5

*Lethargic Encephalitis. A. Cramer.—p. 197; A. Répond.—p. 249.
History of the Société vaudoise de Médecine from 1829 to Date. A. Guisan.—p. 211. Com'd in No. 4, p. 149.
*Pathogenesis of Round Ulcer in Stomach and Duodenum. M. Bourcart.—p. 223.

Lethargic Encephalitis.—Cramer reports three cases of this disease, the first encountered at Geneva, and all developing early this year in previously healthy adults. Two of the patients recovered, but one still presents considerable haziness in his mental processes, and the other still has attacks of nystagmus and there is insomnia. Répond reports a case of recovery after nearly two months in the hospital during which iodid treatment was pushed.

Pathogenesis of Gastric and Duodenal Ulcer.—Bourcart has been seeking for features common to all patients with a tendency to round ulcer in stomach or duodenum, and has found that they are all characterized by more or less sagging viscera and flabby muscles. Whatever the primal cause, the result is a loss of normal abdominal balance, and the circulation of the nerves suffer. Vagotony or sympatheticotony is generally present. The lower part of the chest scarcely shares at all in the breathing movements, and he shows with nine illustrations how the ptosis, the faulty attitude and the shallow breathing combine to hamper the circulation still further. Treatment should aim to improve the respiration and circulation in the trunk, by deep breathing expanding the lower ribs, drawing up the abdominal muscles, erect and reclining, and massage of the abdomen by the physician to restore the viscera to place and maintain them there, and vibratory massage below the liver to stimulate the circulation through it, supplemented by physical exercise and proper diet. His experience with treatment based on the above premises has given excellent results. The tendency to hematemesis subsided, the ulcers healed, and the pain and gastric functioning showed great improvement. All the digestive secretions show great improvement as the static condition of the abdomen returns to normal. "With a liver that breathes right," he adds, "the stomach does not bleed."

Gazzetta degli Ospedali e delle Cliniche, Milan

June 22, 1919, **40**, No. 50

*Pellagra. A. Zilocchi.—p. 510.

Pellagra.—Zilocchi is chief of an insane asylum in a pellagra zone in Italy, and he has made a special study of the disease in this region and of adjoining regions where it does not prevail. His conclusions from his research sustain the general view that pellagra is the result of a too one-sided diet, not supplying enough calories, while the fact that it is usually poorly cooked favors gastro-intestinal derangement. The lack of proper nourishment in time induces a constitutional substandard condition, and the vegetative system suffers with all that this implies for the nervous and digestive systems and the skin. There is also secondary action from retained toxic waste.

June 26, 1919, **40**, No. 51

*Azotemia in Infectious Jaundice. L. Dozzi.—p. 520.

July 3, 1919, **40**, No. 53

Displacement of Heart. G. Binetti.—p. 531.

Nitrogen Metabolism in Infectious Jaundice.—Dozzi recalls that slight azotemia is almost constant in infectious jaundice, but in the mild cases it gradually disappears. In the severer cases, with restricted or suppressed diuresis, the azotemia grows more and more pronounced, and may induce symptoms of actual uremia, miosis, Cheyne-Stokes rhythm, etc. Instead of devoting all our attention to the jaundice in this disease, we must realize that the kidneys are involved and other tissues, and that it is not merely a disease of the liver. It is a general infectious disease, with multiple and extensive involvement. The treatment benefits by this conception. It is important to refrain from nitrogenous substances during the entire period when the tissues are finding it so hard to eliminate the nitrogen liberated by the tissues. It is important, further, to give albuminoids freely during convalescence to aid in the processes of repair, to replace the living substance destroyed by the disease.

Riforma Medica, Naples

July 5, 1919, **35**, No. 27

*Vaccination against Tuberculosis. E. Maragliano.—p. 542.
Induced Pneumothorax in Treatment of Tuberculosis. Id.—p. 543.
*Nitrogen Metabolism. Id.—p. 545.
Uremia and Mercuric Chlorid Poisoning. Id.—p. 546.
*Blood Diseases. Id.—p. 546.
Endocrine Physiopathology. Id.—p. 547.
*Desiccated Proteus X Antigen for Diagnosis of Typhus. E. Signorelli.—p. 549.

Vaccination Against Tuberculosis.—Maragliano here brings down to date his report on the vaccination of children and others against tuberculosis, which he has been advocating for

twenty-five years, as repeatedly mentioned in these columns. He aims to produce a minute focus by subcutaneous injection of dead tubercle bacilli, theorizing that in this focus antigens will be produced and that they will pass into the circulation from this focus, thus slowly and progressively inducing the production in the body of immunizing materials. His clinical and biologic tests have demonstrated that this production of antibodies does actually occur. Research now under way with Sivori's modification of the fixation reaction test has shown an appreciable reaction in healthy persons in two weeks after the vaccination: First the antigens show up more and more while the antibodies are scanty; then the antibodies become more and more evident by the end of one and two months, and they become very pronounced by the end of the third month. Then the antibodies show an ascending curve while the antigen curve keeps low. By the end of the fourth month the two curves run parallel for two months and then the antigen curve descends strikingly while the antibody curve persists nearly the same in its later course. The same results were obtained in monkeys and cows as in man, and five monkeys thus vaccinated were injected at the fifth month with one-tenth mg. of living bacilli, and all survived. Four died of the five controls, within five months. All these findings harmonize with those obtained by study of the agglutinating and opsonic power after the vaccination. The findings were likewise positive in infants born from women that had been vaccinated in this way during the pregnancy. Similar response to the tests were obtained by Levi at Parma; he determined the presence of antigens and antibodies in the blood of mother and fetus, in the placenta and in the milk.

The vaccination was applied to 3,702 members of families with tuberculosis between 1907 and 1914. The later history of 1,893 is known to date, 1915; of this number 1,819 were living and sixty-three had died from other than tuberculous processes and only eleven had died from tuberculosis. All those vaccinated in 1907 were found to be in good health to date. In twenty-six among the earliest vaccinated recently reexamined by a naval medical officer, all were in robust health, while the deviation of complement test revealed persistence of immune principles with predominance of antibodies. A number of persons have been vaccinated elsewhere and in other countries but Maragliano does not include these in his statistics. No inconveniences from the vaccination were ever observed, but the question whether the persons vaccinated might have escaped tuberculosis without this extraneous aid can be answered only by application of the method on a larger scale. At present, man can defend himself against tuberculosis only by acquiring a specific resistance against the bacillus which, notwithstanding all the measures of social prophylaxis, is bound to get to him. In this, Maragliano declares that his research, that is, Italy, has led the way.

Desiccated Bacteria for Biologic Tests.—Signorelli has in his institute has demonstrated that the nitrogen waste in the blood and the proportion of its various elements may fluctuate within wide limits from conditions in nitrogen metabolism altogether independent of the kidneys.

Blood Diseases.—Maragliano comments on the new field for research opened by Ghedini's method of studying blood diseases by examination of a scrap of bone marrow obtained by biopsy. Ghedini has also succeeded in producing hyperglobulia in animals.

Desiccated Bacteria for Biologic Tests.—Signorelli has applied to *Proteus X 19* the method of making durable antigens devised by Micheli and Satta. It has proved very effectual, and he commends this technic in high terms. The suspension of the bacteria is desiccated in a vacuum, as he explains in detail. The diagnosticum can be made from any bacteria of the agglutinating type, and all seem to work well. He describes its application in twenty cases of typhus, from the fifth to the twenty-seventh day of the disease, with comparative tests with fresh cultures of *Proteus X*. In one case agglutination occurred at $\frac{1}{10.000}$ with the desiccated and $\frac{1}{6.000}$ with the fresh culture; in other cases the desiccated was two and four times as sensitive.

Rivista di Clinica Pediatrica, Florence

May, 1919, **17**, No. 5

Mortality of Infants in Infants' Asylums. A. Malagodi.—p. 225.
*Vitiligo Mask with Inherited Syphilis. C. Vignolo-Lutati.—p. 238.
Recent Literature on Vitamins. G. Guidi.—p. 243.

Vitiligo Mask with Inherited Syphilis.—Lutati reports two cases in which children of 7 and 11 presented vitiligo of the face alone, with some asymmetry of the face. The parents of both were syphilitic. The vitiligo had begun to develop three and five years before, and at date of writing formed as it were a actual mask over the face. The Wassermann reaction was positive only in one of the children, but both showed other stigmata of syphilis.

Rivista Critica di Clinica Medica, Florence

May 17, 1919, **20**, No. 20

*Peripheral Paralysis of the Fifth Nerve. P. Pennato.—p. 229.
Modern Treatment of Bronchial Asthma. E. Riccioli.—p. 238.—Conc'n.

Peripheral Paralysis of the Fifth Nerve.—Pennato reports two cases. In the first the left seventh as well as the fifth nerve was paralyzed, but horizontal deviation of the jaw was the only manifestation of the involvement of the fifth. The man had old syphilis and recent malaria. In the second case the paralysis affected the right fifth, sixth and seventh nerves, and the deviation of the jaw to the right was also horizontal, not oblique.

Amazonas Medico, Manáos

January-March, 1919, **2**, No. 5

Rabies in Amazonas. A. da Matta.—p. 5.
*Color in Vital Statistics. J. Miranda Leão.—p. 11.
Influenza in Amazonas. A. da Matta.—p. 14; J. Miranda Leão.—p. 24; T. Beltrão.—p. 36.
*Intestinal Parasites. J. M. Leão.—p. 37.
Nematodes. A. da Matta.—p. 40.
Vaccination with "Cow Pox." J. M. Leão.—p. 48.
*Association of Leishman Bodies and Fusospirillar Infection. A. da Matta.—p. 50.

Racial Color in Vital Statistics.—Leão emphasizes the necessity for specifying in vital statistics the color of the skin, so that whites, Indians, negroes and mulattoes can be classed separately and the pathology of each class better studied.

Intestinal Parasites.—Leão says that the perverted appetite which impels certain persons to eat dirt and other unsuitable substances is the effect of the anemia resulting from the blood-sucking action of certain helminths, plus the toxic action from their secretions and products. This perverted appetite or *picácia* of these *papa-terras*, as they are called, is instructive evidence of the presence of trichocephalus or hookworm. In addition to the usual means recommended for treatment, he advises an infusion of the leaves of a plant, the *pipi* or *mucuracaá*, (*Petiveria alliácea*) which, he says, expels tenia, round worm, hookworm and the oxyuris, and reduces the number of the ova of the trichocephalus. The washed fresh leaves are crushed and a tablespoonful of the juice is taken fasting, followed by a glass of water and, two hours later, a purgative. Children are given 5 drops of the juice for each year, in a little water followed by a little more water, and two hours later half a tablespoonful of castor oil. The dose is repeated every second day, for four or more times. Santonin is not effectual for any helminths except ascarides, he adds. The last meal the day before should be merely tea or coffee with milk and *bolachas*.

Leishman Bodies Plus Fusospirillar Infection.—In da Matta's case, in the long chronic lesions on foot and leg of superficial leishmaniosis, fusospirillar bacteria of the Vincent type were found in the ulcerating parts of the sores.

Revista Médica del Rosario

July, 1919, **9**, No. 3

*Radium Therapy. E. Jonquiéres.—p. 189.
*Influenzal Psychoses. C. Alvarez and T. Fracassi.—p. 197.
*Symmetrical Gangrene. E. F. Solari.—p. 211.
Transvesical Prostatectomy under Local Anesthesia. M. A. Llanos.—p. 220.

Radium Therapy.—Jonquiéres reviews his extensive experience with radium therapy for almost all kinds of skin lesions and tumors, emphasizing in conclusion that radium should not be regarded as the last resort but should be considered among the earliest measures to be applied. He says that the indications for it are well defined, and that it is the preferable treatment for many medical affections. He adds that as radium respects the organ of vision, it has been used to advantage for epitheliomas of the lid, etc., without interfering with vision. But with ulcerating neoplasms and recurrences requiring new, long and numerous exposures, the eyeball becomes atrophied, with complete loss of vision. When an epithelioma of the mouth heals under radium, there is no disfigurement as after resection. Only vegetating cancers in the mouth, he adds, are amenable to radium. The ulcerating, infiltrating cancers are extremely rebellious, and he always advises their surgical removal to begin with; this does not have to be very mutilating, as the application of radium to the surgical wound satisfactorily completes the treatment. With epithelioma of the skin, the global destructive action of the radium for one or two hours in all may be preferable, but in all other forms the exposures should be prolonged for twelve, twenty-four or thirty-six hours, every two or four weeks, till the cure is complete. Sarcomas yield to radium the more readily the nearer they are to the embryonal type. It is important to strike hard, as sarcomas become generalized so readily. With chronic eczema and horny growth of hands and feet, he has obtained under radium most gratifying results, far surpassing those obtainable by any other measure. He has had cases of ferocious vulvar and scrotal pruritus subside under the third global irradiation (without filter) of a few minutes' duration, and the cure was complete for months. Any recurrence yields promptly to the same. The basal cell, pavement cell, and cylindric cell cancers are most amenable to radium therapy, the lymph glands not being involved early. The spindle cell and nevi cancers promptly extend to the lymph glands, and are sometimes refractory to radium. With any ulcerative cancer on mucous membrane, it is almost hopeless to apply radium therapy in the overwhelming majority of cases.

Influenzal Psychoses.—Five cases are described. The influenza had not been severe and the psychoses subsided in these cases in less than three or four months.

Symmetrical Gangrene.—In Solari's case the fingers dropped off of both hands and the gangrene of the legs extended from the toes up on the thighs. The patient was a farmer of 40 with no history or signs of syphilis or malaria, and he did not drink or smoke. Chilliness in the feet was the first symptom; then there were pains. These symptoms appeared at times during seven months, with intermissions of three or four weeks. Then the symptoms became more severe and the hands were involved. The eleventh month the extensive and progressive dry gangrene developed in hand and legs, with patches on the brow and ears. As a last resort treatment as for syphilis was pushed but no benefit was apparent, and the man died the thirteenth month.

Revista de Medicina y Cirugía Practicas, Madrid

April, 1919, **123**, Nos. 1549-1551

Iron and Arsenic Useful in Hysteria. R. Del Valle y Aldabalde.—p. 5.
Nephritis of Malarial Origin with Peptonuria. J. C. Castellvi.—p. 77.
Operative Treatment of Purulent Pleurisy. J. Blanc y Fortacin.—p. 91.

Siglo Médico, Madrid

June 21, 1919, **66**, No. 3419

*Obesity and Oxaluria. T. Morato and G. Villanueva.—p. 493.
Surgical Treatment of Strabismus. B. Castresana.—p. 495. Cont'n.
Autonomy of Universities. S. Ramon y Cajal.—p. 505.

Obesity and Oxaluria.—Morato and Villanueva declare that under thyroid treatment in the case described not only the obesity but also the oxaluria showed a marked change for the better. The previously healthy woman of 59 had begun to grow obese at the time of the menopause, and other signs and symptoms developed suggesting thyroid insufficiency. Under thyroid treatment the obesity and other symptoms retrogressed and along with them the oxaluria.

Hospitalstidende, Copenhagen

July 16, 1919, **62**, No. 29

*Chordoma Growing into the Pharynx. J. F. Møller.—p. 849.

Malignant Chordoma.—Møller removed a supposed fibromyxoma from the nasopharynx of a boy of 16, but the tumor returned and proved to be a malignant chordoma involving the pharynx. This was successfully removed, and the youth is still in good health a year later.

Nordiskt Medicinskt Arkiv, Stockholm

October 18, 1918, **51**, Internal Medicine Section No. **1**

*Arrested Development of Ectoderm. J. Strandberg.—p. 1.
*Recurring Puerperal Polyneuritis. M. Valberg.—p. 13.
Decrease in Eosinophils with Serum Sickness. E. Kylin.—p. 35.
*Clinical Significance of Tube Casts. R. v. Jaksch.—p. 43.
*History of Syphilis in India. J. Charpentier.—p. 47.
*Death under Roentgen Treatment of Exophthalmic Goiter. K. Secher.—p. 63.
*Extrapyramidal Pseudosclerosis. G. Söderbergh.—p. 71.
Cerebellar Tremor. G. Söderbergh.—p. 97.

Arrested Development of Ectoderm.—Strandberg describes in detail a case of various malformations from arrested development, including entire absence of teeth and atrophy of the skin which has scanty pigment and no sweat glands or hair. The man is a factory owner of 39, otherwise healthy except for a nasal affection resembling ozena. This was pronounced also in three of five analogous cases Strandberg has found on record. He notes the analogy also between the case here described and the normal development of the ectoderm in whales.

Recurring Puerperal Polyneuritis.—In the case reported by Valberg the woman of 34 had had the toxic polyneuritis return at each of her three childbirths, without a trace of it in the interim. Paresis of accommodation was a special symptom, along with the paralysis of all the limbs. These symptoms developed five weeks, three weeks or eleven days after the delivery, and they subsided completely in ten or eight months. The woman was otherwise healthy, and there was absolutely nothing to suggest exogenous toxic action. He has been able to find only seven similar cases in the literature, and only one of them is beyond question; in two the polyneuritis developed during the pregnancy. In the others, only the arms were involved. Valberg's own case was far the severest of all. He calls attention in particular to the similarity of the clinical picture in each attack; either the special nerves involved are constitutionally inferior or exceptionally susceptible to the neuritis-producing toxin.

The Clinical Significance of Tube Casts.—Von Jaksch reiterates that the appearance of large numbers of cylindroids is a characteristic sign of disturbance in the circulation in the kidneys. With acute disturbance, as from occlusion of the renal artery by an embolus, the long and extremely narrow hyaline casts stretch across several fields of the microscope, and are beset with dense clusters of red corpuscles. Ribbon-like casts or cylindroids of this kind seem to be pathognomonic of an acute disturbance in the circulation.

History of Syphilis in India.—Charpentier is instructor in Sanskrit at the University of Upsala, and he calls attention to some hitherto overlooked data in Sanskrit literature which throw light on the history of syphilis.

Fatality Under Roentgen Treatment of Exophthalmic Goiter.—Secher reports the case of a previously healthy woman of 39, who had developed exophthalmic goiter in the course of a year. He gave eight roentgen exposures in two days, each a one-half Sabouraud-Noiré dose, with a 2 mm. filter, exposing three fields on the thyroid gland and one on the thymus. The condition became aggravated even during the roentgen treatment, and the condition grew rapidly worse till death the fifth day. He reviews the three cases on record in which roentgen exposures of simple goiter were followed by symptoms of exophthalmic goiter. In Rieder's and Verning's cases the aggravation proved speedily fatal, as in the case here described.

Extrapyramidal Pseudosclerosis.—Söderbergh reports a case of Wilson's pseudosclerosis in a boy of 14½. The

movements in nearly all the muscles are strikingly slow and stiff, but the hypertonus differs from that with pyramidal lesions.

Norsk Magazin for Lægevidenskaben, Christiania

August, 1919, **80**, No. 8

*Orthostatic Tachycardia. S. K. Mørdre.—p. 801.
*Brain Abscess of Nasal Origin. K. Haugseth.—p. 822.
*Ether or Thymus Death? T. Cappelen.—p. 826.
*The Antibodies with Allergy. A. de Besche.—p. 830.
*Inheritance of Tendency to Twins. K. Bonnevie.—p. 847.

Orthostatic Tachycardia.—Mørdre discusses the pathogenesis of orthostatic tachycardia and the action on it and on dermographism of atropin and of epinephrin and of mechanical influences. The main factors in orthostatic tachycardia seem to be an instability of the vegetative nervous system, an orthostatic enteroptosis, and an orthostatic drop in the blood pressure. The findings in thirty-five cases are compared. The pronounced degrees of orthostatic tachycardia were associated with sympatheticotony in six of his eleven cases. A neurotic tendency was frequent in this group. One of the men in this group had urticaria and phenomena suggesting vagotony, and yet he gave a pronounced response to epinephrin. Such cases testify to the close connection between the vagus and the sympathetic systems. Dermographism does not parallel the orthostatic tachycardia.

Brain Abscess of Nasal Origin.—Haugseth trephined through the temple region when the girl of 14 developed symptoms of a brain abscess following acute frontal sinusitis after influenza. As the rear wall of the sinus was found apparently intact, he refrained from puncturing here, and made the trephining opening through the sound tissue in the temple region. The opening discharged secretions for about five weeks but complete recovery ensued by the end of the sixth week, when the girl left the hospital. She was in perfect health when seen four months later.

Ether or Thymus Death?—Cappelen found that the thymus extended far down in the thorax in the man of 20 who died from respiratory paralysis after scopolamin-pantopon-ether general anesthesia for an operation for a tendon sheath phlegmon on the left middle finger. He never roused from the anesthetic, and stopped breathing, but the heart action kept good during four hours of artificial respiration. Then signs of pulmonary edema developed, and death occurred five hours after the close of the anesthesia. The passage of air was free throughout. The thymus measured 8 by 3 by 3 cm. and weighed 35 gm. and Cappelen regards this persisting thymus as the explanation of the fatality. The doses of the anesthetics had been injection of ⅓ mg. of the scopolamin and 2 cg. of the pantopon, and about 100 gm. of ether (Norwegian) had been used.

The Antibodies with Constitutional Hypersensitiveness, Asthma, Hay-Fever, etc.—De Besche has continued the researches and experiments of which a summary was given in these columns, June 8, 1918, p. 1804, with editorial comment, p. 1765. His present research deals with bronchial asthma and hay-fever. In 14 cases the asthma was brought on by the smell or touch of the skin of a horse, in 3 by cats, and in one each by dogs and cows. He found that the blood of these persons contained specific precipitins for the albumin of the animal in question or the solution of albumin inducing the reaction. The responses were not always positive, varying at different times. They were negative in 2 cases directly after the attack of asthma had been elicited. This is interesting in connection with the disappearance of all symptoms in one case after a shocklike condition brought on by injection of horse serum. There were no further signs or symptoms of the asthma for three or four months thereafter, even when in close association with horses. This harmonizes with the findings in experimental anaphylaxis, especially as the condition can be passively transferred to others. He presents other data, including Walker's findings, which seem to sustain his assumption that there is a production of specific antibodies in these hypersusceptible persons, and that these antibodies are mainly cellular, but occasionally they can be found in the blood in large amounts. The anaphylactic reaction-body may circulate in the blood, and the anaphylactic tendency can be passively transferred to guinea-pigs by injection of this blood serum. Instances are known of hereditary transmission of horse asthma. Some anomaly in the resorption or in the metabolism of albumin seems to be the cause of the disturbances. A large quantity of antibody and a small amount of antigen may cause the death of the animal with experimental anaphylaxis, as likewise a small quantity of antibody and a large quantity of the antigen.

Twins in Certain Families.—Bonnevie here presents the second official communication from the Christiania University Institute for Research in Heredity. A genealogical chart is given through nine generations of a family, covering 150 years and 5,000 members, with 1,300 married couples. One branch of the family had twin or triplet births in 7.7 per cent. of the total 1,151 childbirths, while no twins were known in the 2,266 births in the other branch of the family. Eight of the twin-birth mothers bore twins or triplets more than once, and the families with twins were somewhat larger than the average. The mothers of the twins with one ovum were generally younger women, but 80 per cent. of the twins were of the two ovum type. In the entire chart there is not an instance of twin birth in which the inherited tendency to twin births can be excluded on either side. The tendency to two-ovum twins behaves like a recessive character. The twins themselves did not seem to breed twins more than the other members of the family.

Ugeskrift for Læger, Copenhagen

July 10, 1919, **81**, No. 28

Influenza in Navy Hospital. H. Rasmussen and H. Rud.—p. 1133.

July 17, 1919, **81**, No. 29

*Röentgen Treatment of Exophthalmic Goiter. S. Nordentoft.—p. 1169.
Influenza at Thorshavn. K. Bierring.—p. 1176.
Public Health in Germany at Close of War. A. H. Hoff.—p. 1181.

Roentgen Treatment of Exophthalmic Goiter.—Nordentoft has another series of fifty to add to his fifty cases of exophthalmic goiter given roentgen treatment. His conclusions are practically the same as from his first series (reviewed in these columns, Nov. 16, 1918, p. 1702). The later and the continued results in his first series have been equally favorable. The details of some specially striking cases are given, including one in a man of 33 two of whose cousins and a sister also had exophthalmic goiter. His symptoms suggested that the thymus and vagus were mainly involved (subjective heart symptoms with moderate pulse, sweats, thirst and dizziness with extreme exophthalmos). The symptoms subsided under exposures of the thymus and part of the thyroid and later of the thymus alone. There were only eight men in his total 100 cases, and they were mostly of this thymus type. He regards small roentgen doses as only irritating, while a single large dose has a destructive action from the first. If there is any risk with roentgen treatment of exophthalmic goiter it is with repeated small doses. Prudence requres a full dose applied at one sitting. Referring to operative treatment of exophthalmic goiter, he mentions the fatal outcome in fourteen of the seventy-six operative cases at the Rigshospital. In conclusion he urges the advantages of change of scene and other measures to combat the instability of the nervous system common with exophthalmic goiter.

July 24, 1919, **81**, No. 30

*The Vestibular Jaw Reflex. S. H. Mygind.—p. 1205.
The Influenza Epidemic at Copenhagen. O. S. Rasmussen.—p. 1210.
*Camphorated Oil, for Neuritis and Sciatica. A. S. Jensen.—p. 1216.

Vestibular Jaw Reflex.—Mygind has been applying rotation tests to newly born infants, and noted among others a peculiar distortion of the mouth accompanying the nystagmus as he describes and interprets.

Camphorated Oil in Sciatica.—Jensen relates that the pain subsided completely in the course of ten or twelve days in all of his thirteen cases of sciatica treated by injection of 3 or 4 c.c. of camphorated oil in the limb involved. He has found this measure useful also in neuritis, the pains all subsiding within five or six days.